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PENETRATING WOUNDS OF THE HEART WITH SUTURING OF THE WOUNDS—REPORT OF A CASE.*

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(WITH TWO ILLUSTRATIONS.)

Wounds of the heart penetrating into one of the cavities where hemorrhage was checked by suturing are extremely rare. They are rare by reason of the fact that patients usually bleed to death before surgical aid can be rendered, and also because of the hesitancy on the part of the surgeon in deciding upon the operation, this class of wounds being looked upon as almost universally fatal. From the best information obtainable there are twenty-two of such cases on record. The history and descriptions in some instances, however, are so incomplete that it is a question whether all belong to this class of cases.

In reviewing these reports it is noticed that the suturing is usually performed several hours after the injury, showing that there must have been present some condition which retarded the flow of blood sufficiently to allow time for the surgeon to act. It is this condition, to my mind, that makes these wounds most interesting, and not so much the surgical skill required in suturing them. The case which came under my observation and a report of which follows entered the hospital at 6:00 P. M. on April 20, 1901, with a history of having been stabbed two hours prior to admission. The patient was a young man, twenty-two years of age, well developed, and weighing about one hundred and eighty pounds. He was in an unconscious condition, and all information had to be obtained from an officer who accompanied him. According to the officer's statement, patient during an altercation with another man had been stabbed in the chest with a knife. It was also learned that after the injury patient ran a distance of one hundred feet, when he fell exhausted and unconscious. After the infliction of the wound and up to the time of admission friends of the patient made repeated attempts at reviving him, and failing in this had him forwarded to the hospital.

General inspection showed the skin and lips very pale, breathing shallow but regular, and patient lay quietly and senseless on the operating-table. A knife wound was noticed three-quarters of an inch in length and situated at a point corresponding to the fifth intercostal space on the *right* border of the sternum,

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Wound was filled with small clots of blood and the bleeding from it amounted to about as much as one would expect from a small superficial skin wound, and did not impress one as being connected in any way with the heart.

The physical examination, however, revealed the true nature and depth of the wound, and that an internal hemorrhage was taking place. The pulse was imperceptible. No apex beat could be found. Examination of the femoral arteries elicited a slight pulsation of those vessels. A feeble pulsation could also be detected in the carotids.

Percussion showed an area of heart dullness bounded on the right by the right border of the sternum, above by the third rib, and on the left by the nipple. The increased area of dullness indicated, to my mind, that a hemorrhage was taking place into the pericardial sac. The question arose whether the right pleural cavity had been opened, and if so, how much bleeding was taking place into that cavity. Percussion over the right chest, however, outlined the lung in its normal area.

Auscultation showed a muffled sound over heart area and the heart-beat barely audible. The sounds made the impression that the heart was farther from the ear than normal. The contractions at this time were irregular and numbered about 120 per minute. Careful auscultation did not make it possible to hear any splashing or whizzing sound, indicating again that there was no air present, and therefore no connection with the pleural cavity or lung. No abnormal signs were audible over any portion of the lungs.

An immediate operation was decided upon, and after the usual preparations a semi-circular incision was made in the skin over the sternum, with the base of the flap toward the left side. The cut was made through the stab wound and laid bare the bony wall to the extent of about three inches in diameter. The patient being unconscious no anæsthetic was necessary. On raising the flap it was found that the knife had penetrated between the fifth and sixth ribs, immediately to the right edge of the sternum. It was decided to follow the recommendation of E. Giordano in his surgery (*La Chirurgie del pericardie e. del Cuore*), where he advises, first, to follow canal of wound to pericardium and heart rather than make an osteoplastic flap, as it might be sufficient to stop hemorrhage through a small opening in this way. The cartilages of the fifth and sixth ribs on the right side were severed near the sternum, then by means of the *rongeur* a sufficient portion of the sternum was removed to bring the cut in pericardium plainly into view. A cut three-fourths inches in length was found in pericardium, from which very little blood flowed, as a large clot was lying immediately behind, preventing the escape of any liquid blood. With the finger introduced into the pericardium I could feel the cut in the heart. In order to be able to approach this wound it was thought necessary to enlarge the opening in the sternum, which was done so that it measured two inches in diameter, the pleura being left intact. The edges of the cut in pericardium were then seized with forceps and the wound enlarged, making it two inches in length. That a high pressure existed in pericardium was shown by the fact that the blood spurted from the cut, carrying with it large coagula. The heart, which had hitherto acted feebly, was now becoming more forcible and began to press the blood clots forward.

It was noticed that the thickest layer of coagulated blood was found against the posterior surface of the heart, and was removed partly by means of the finger hooked around the heart and partly by a stream of physiological salt solu-

tion poured into the sac. After removal of all the clots the heart-beat was 100 per minute, regular and forcible.

The hemorrhage from the heart during all this time was controlled by pressing the tip of the finger into the cut. Before suturing the edges of the wound, the bleeding from the wound was carefully observed and it was noticed that it occurred mostly during diastole and almost ceased during systole. The wound in the heart measured one-half inch in length, the line of the cut running parallel to the longest diameter of the heart, and was situated in the center of the wall of the right ventricle; the blade seemed to have penetrated it obliquely.

In order to facilitate the suturing of the heart, the edges of the cut were seized by two narrow Kocher forceps and the organ drawn forward into the opening in the sternum and held there until the first suture could be introduced, after which forceps were removed and the heart was held by the suture. Three interrupted silk sutures were required to stop the bleeding, care being taken on introducing the needle not to include the endocardium. The knots were drawn together and tied during diastole. The patient was then heavily stimulated by injections of whiskey, strychnine and physiological salt solution.

While suturing the heart patient became conscious and conversed in a perfectly rational manner; he discussed the injury and on inquiry stated that he felt no pain, nor was any perceptible shock noticed while the heart was being manipulated.

The pericardium was partly closed and a small drain of plain gauze introduced. The flap of skin was stitched back with the exception of a small opening for drain.

POST-OPERATIVE COURSE.

Immediately after the operation patient's temperature was 98°; pulse, 110; respiration, 30.

At six o'clock the next morning patient had a temperature of 98°; pulse, 120; respiration, 30, and was resting fairly well. Was most comfortable with chest elevated to almost sitting posture.

During the entire course of treatment patient was regularly stimulated with whiskey and strychnine. Hypodermic injections of physiological salt solution were administered every three hours.

Patient had a complete suppression of urine, as repeated catheterization of bladder did not furnish enough to enable us to make a urinalysis. In order to favor the action of the kidneys, hot applications were made to the body and enteroclyses of hot water were given every three hours, but without any results. About thirty-two hours after the operation the patient's condition suddenly grew worse. Temperature rose to 104°; pulse became very rapid. Patient died thirty-three hours after operation, having remained conscious up to the last moment.

POST-MORTEM EXAMINATION.

This was made under the direction of Dr. Funkhouser, the coroner of St. Louis, and showed all the organs, except the heart and pericardium, in a normal condition. I am extremely sorry that no report could be obtained as to the condition of the kidneys, as I feel satisfied that abnormalities would have been found in that organ.

The pericardial sac was found to be completely obliterated and a fibrinous

exudate covered the entire heart. Removal of the lymph exposed a highly injected pericardium, which was very cloudy in appearance. The edges of the wound in heart were agglutinated, and the sutures, three in number, were intact and were covered with a layer of lymph.

The right ventricle was then opened by a v-shaped incision, so that the entire wall was left intact with wound in the center, as shown in the cut.

The endocardium was found to be smooth and retained its normal luster. The heart muscles appeared soft and flabby. The cut in the endocardium was about one-half inch in length, was parallel to and situated between two columni carneæ, which were lying close together in anterior wall of ventricle, so that the wound on inside could not be seen until these masses of flesh were drawn apart. The edges of the wound were noticed to have become agglutinated and showed no inflammatory changes.

The cause of death, from post-mortem findings, was given as shock and pericarditis.

The case, although terminating fatally, presented numerous points of interest. In the first place, our patient was unconscious, not from the shock or loss of blood, but from the circulatory disturbance caused by the compression of the heart. The unconsciousness was to the extent that permitted of operation without an anesthetic. The moment the pressure was removed consciousness was restored completely.

It was the first case operated upon in which no injury existed to the pleura, and hence no communication between the pleural cavity and the pericardial sac. In the other twenty-two cases reported, the pleural cavity had been opened on the left side in twenty-one cases, on the right side in one case. There was, therefore, in all those cases a direct flow of blood from the heart through the opening in the pericardium into the pleural cavity. In the present case the blood, being unable to escape, caused a gradual increase of intra-pericardial pressure and a steadily growing weakness of the heart, hence the patient was pulseless and heart-beat barely audible. And yet the pressure was not sufficient to cause a stasis and cyanosis, which so often precedes death in similar wounds. Cohnheim⁴ demonstrated in his experiments on animals that hemorrhage of this kind caused a compression mainly of the auricles and large vessels, damming back the blood and preventing its flow into the ventricle, thus producing a marked cyanosis. This was not visible in our case, and was perhaps due to the fact that bleeding took place chiefly during diastole, and very little blood flowed directly from cavity during systole. Although pressure was increased somewhat, it was not to the extent of complete compression of the auricles. There was an absence of that splashing sound in the region of the heart, which is so frequently described by surgeons in connection with the reports of their cases.

I should like to suggest the following explanation for this striking fact: I have observed and operated upon four cases of penetrating wounds of the pericardium in which there was a bleeding into the pericardial sac. In these four cases there was a communication of the sac with the pleural cavity, and in each instance the splashing sound was audible. I conclude, therefore, that the absence of the sound is due to an increased intra-pericardial pressure, produced by an accumulation of blood. This accumulation is due to the absence of an avenue of escape, there being no communication with the pleural cavity. Therefore the splashing sound, audible over the region of the heart in injuries of this kind,

seems to be an important sign in connection with the diagnosis, as it determines whether the pericardial sac communicates with the pleural cavity or not.

The whizzing sound described by surgeons in connection with these cases, which indicates the presence of air in the pericardium, was also absent in our case.

The fact that the wound in our case was extra-pleural, made it advisable to perform the suturing through the extra-pleural route. In all other cases reported, either the right or left pleura was injured, and the operations were performed through the intra-pleural route. The avenue of suturing was therefore different from any heretofore. It was performed through an opening two inches in diameter without any difficulty, the heart being held with forceps and drawn up to the opening while the first suture was being applied. Not the slightest tearing was produced, nor did any shock follow the application of the instruments.

Another point of interest was the fact that the knife penetrated on the right side of the sternum. With the exception of the case reported by Watten in *Deutsche Med. Wochenschrift* (Leipzig), September 5, 1901, all the wounds were found on the left side of the sternum.

The direction and position of the wound in the heart was also an extremely interesting feature in the case, and was such as permitted of the least amount of hemorrhage. The knife had penetrated the heart muscle obliquely, the direction being that of the staff as shown in figure I. Elsberg, in *Journal of Experimental Medicine*, September, 1899, reports the result of his experiments on animals, and showed conclusively that oblique wounds bled far less than perpendicular ones, as in this form the canal of the wound is longer and favors the formation of small clots. "Then, too, in oblique wounds the surfaces are more tightly pressed against each other during the systolic contraction of the part." But this was not the only favorable circumstance in our patient's wound. The main factor and which, in my opinion, prevented our patient from rapidly bleeding to death, was the position of the cut in the endocardium. As stated above, it was about one-half of an inch in length and situated between and parallel to two columni carneæ, and in order to see the wound it was necessary to draw apart the columni. It was observed during the operation that only a small hemorrhage took place during systole, which was undoubtedly due to the pressing together of the columni, acting as valves to the opening. Since the hemorrhage occurred mainly during diastole, it must necessarily decrease as the pressure in the pericardium increased. In this way the wound was pressed against from both sides, and it is likely that this condition served to keep our patient alive for over two hours.

The experiments of N. Napolkaw,^s Delorme, Elsberg and others¹ were also borne out in this case in regard to the size and position of the clot of blood in the pericardium, namely, that the thickest portion of it was found back of the heart. The front of the heart was covered with a layer not thicker than one-fourth of an inch, while that lying against the posterior portion of the heart was at least three-fourths of an inch in thickness.

METHODS OF OPERATION.

Different methods have been devised for suturing the heart, and surgeons have divided them into two classes: one the extra-pleural, in which an osteoplastic flap is made of the sternum; the second the intra-pleural method with osteo-

plastic flaps, laying back one or more ribs. In the first method the pleura is left intact, while in the second the pleural cavity is always open. The first method has been described and advocated by von Rydygier² and Giordano.³ The method of von Rydygier consists of an osteoplastic flap made as follows:

The first incision, made transversely across the sternum on a level with the lower border of the second rib, extends from the right to the left border. A second cut is made parallel to the first on a level with the fifth rib; the two are united by a third incision, running parallel to the left border of the sternum. The cartilages of the third and fourth ribs on left side are then divided, as is also the sternum, and the entire flap forcibly pulled toward the right side.

The one by Giordano consists of an osteoplastic flap with a hinge on the left side of the sternum, and includes a section of the sternum extending from the attachment of the second rib down to the fourth.

Statistics gathered by Fischer and Loison⁴ have shown that the large majority of wounds of the heart have occurred in the ventricle. I have been able to find only one case, that reported by E. Giordano, in 1898, in which the auricle was injured.

With a view to obtaining a flap which would lay bare a large portion of the heart, and especially the ventricles, and thus cover the large majority of cases, I have in some twenty sections on the cadaver outlined a flap which seems to answer all purposes. It includes that portion of the sternum extending from a point on a level with the lower border of the cartilage of the third rib down to the articulation of the gladiolus with the ensiform cartilage. An incision is made from the right border of the sternum transversely across on a level with the lower border of the third rib to a point about one inch to the left of the sternum. A second cut is made from the right border of the sternum across to a point one inch to the left of the sternum and on a level of the articulation of gladiolus with the ensiform. The left extremities of the two cuts are united by a perpendicular incision. The cartilages of the fourth, fifth and sixth ribs are divided, care being taken to remain close to the cartilages, particularly that of the fourth, as the pleura usually lies closely attached to that rib. It is an easy matter then to loosen with an elevator the tissues from the posterior surface of the sternum, as the pericardium is only loosely attached, and there is at no time any danger of injuring the pericardium.

With a cartilage saw and the costotome the sternum is readily divided. However, care should always be taken not to allow the instrument to pass beyond the right border of the sternum, as there is great danger of injuring the right pleura, which lies immediately back and comes up to the right border of the sternum. I have found it safest, after the sternum had partly been divided, to pass the finger back of the sternum and push away the right pleura before dividing the entire sternum. After dividing these bony structures the entire flap is forcibly turned toward the right side, and the cartilages on the right side partly broken (as shown in figure II). By this method a good view can be obtained of the heart, with the exception of the upper portion of the auricles and the beginning of the great vessels. It exposes the anterior surface fairly well, and that is usually all that is desired in the extra-pleural method, since in those cases where the side of the heart is injured the pleura will be found to be penetrated also, in which case the intra-pleural method will be the more advisable operation.

For the intra-pleural method the one devised by Rotter⁵ seems to me to

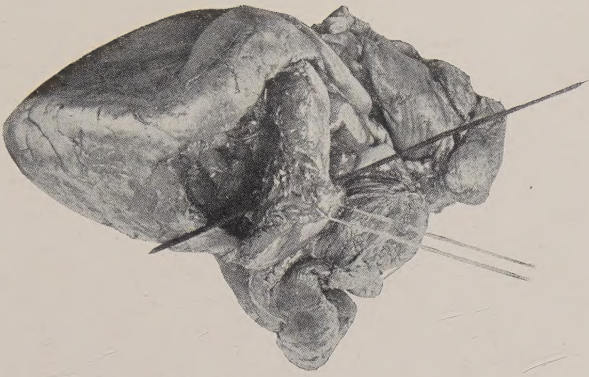


FIG. I.

Photograph of heart. The right ventricle is opened by V-shaped incision. The staff passed through the wound indicates the direction of the canal.

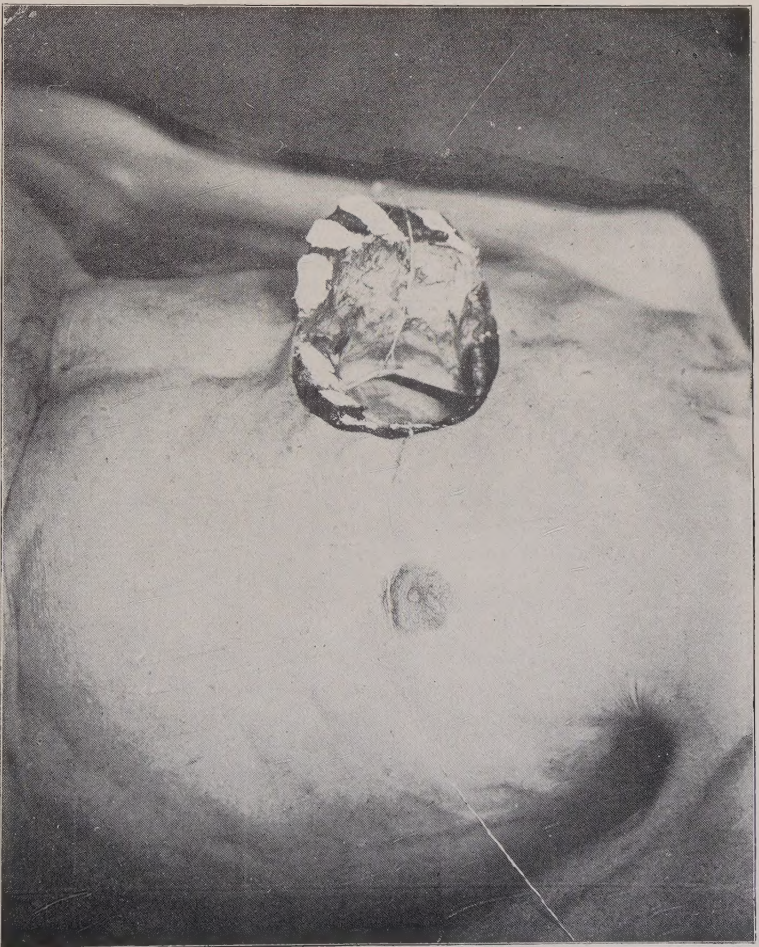


FIG. II.

The extra-pleural method. An osteoplastic flap, which includes a section of the sternum with a division of the fourth, fifth and sixth costal cartilages on left side. The pericardium is opened and the edge held back by means of a string. The heart is seen in the depth of the wound.

be the best, as it lays bare the greater portion of the heart, and is the most rapidly performed with the least amount of hemorrhage. It consists of an incision extending from the left border of the sternum, parallel to the third rib outward about two inches. A second incision is made on a level with the sixth rib, and extending from the left border of the sternum to a point two inches toward the left side. A third incision connects the outer ends of the two incisions. The third, fourth and fifth ribs are then divided in the line of incision, as are also the muscles and pleura. The entire flap is then forcibly turned toward the right side, and the cartilages broken near the sternum. In this way the right ventricle and a large portion of the left can be brought clearly into view. The hand can readily be passed into the chest cavity, and the heart grasped or pressed forward to facilitate the suturing.

Since out of the twenty-two cases reported twenty-one wounds were inflicted on the left side of the sternum, all injuring the pleura, it seems to me to be the operation that would cover the large majority of cases. I had occasion to perform the operation a number of times on the cadaver, and recently performed a slight modification of it on a patient whose left ventricle had been penetrated by a knife. In this case the suturing was performed with little difficulty. The operation was performed four weeks ago, and as the patient is still under observation and not completely recovered at this writing, the case is not included in this report.

Other operations of the intra-pleural method have been devised by Pamoni and Parrozzani,² but differ only slightly from Rotter's operation.

Although it is advisable for the surgeon to be familiar with all the methods in use, it seems to me that a thorough knowledge of the anatomical relations is of the most importance. Thus Watten, who had to deal with a stab wound on the right side of the sternum in the fourth intercostal space, in which the pleura was injured, made a flap including the third and fourth ribs on right side, and turned them outward. He claimed that this opening gave him ample room to suture the wound, which was located in the right ventricle. It is, therefore, impossible to lay down any definite rule for exposing the heart, and each operator should be guided by the position and direction of the wound.

I have been able, as mentioned above, to collect from various records twenty-three cases of penetrating wounds of the heart where suturing was performed. This number includes my own case. The following are brief reports of the names of the operators, year of operation, position of the wound, and result:

1. Cappellen,⁶ operation performed in 1896, wound located in the fourth intercostal space on left side of the sternum; patient died.
2. Farina,⁶ operation performed in 1896, wound located in fifth intercostal space, left side of sternum, penetrating left ventricle; patient died.
3. Rehn,⁶ operation performed in 1897, wound located on left side of sternum, in fourth intercostal space, injuring the right ventricle; patient recovered.
4. Parrozzani,⁶ operation performed in 1897, wound located in seventh intercostal space, left side, injuring left ventricle; patient recovered.
5. Parrozzani,⁶ operation performed in 1897, wound located in third intercostal space, left side, injuring left ventricle; patient died.
6. Parlavecchio,⁶ operation performed in 1898, wound located in fifth intercostal space, left side of sternum, injuring left ventricle; patient recovered.

7. Ninni,⁶ operation performed in 1898, wound located in fifth intercostal space, left side of sternum, injuring the left ventricle; patient died.

8. Giordano,² operation performed in 1898, wound located in second intercostal space on left side of sternum, injuring left auricle; patient died.

9. Pagenstecher,² operation performed in 1899, wound located in fourth intercostal space on left side of sternum, injuring the left ventricle; patient recovered.

Cases 10, 11 and 12, reported by Horodynski and W. Maleszewski in *Medycyna*, 1899, and operated upon by Kosniski,⁹ are as follows:

10. Wound located in third intercostal space on left side of sternum, injuring the left ventricle; patient died.

11. Wound located in third intercostal space on left side, injuring the right ventricle; patient died.

12. Wound located in fifth intercostal space on left side, injuring left ventricle; patient died.

13. Nicolai,⁶ operation performed in 1899, wound located in fourth intercostal space on left side of sternum, injuring right ventricle; patient died.

14. Tuzzi,⁶ wound located in fourth intercostal space on the left side, injuring left ventricle; patient died.

15. Longo,⁶ wound located in fifth intercostal space on left side of sternum, injuring left ventricle; patient died.

16. Ramoni,⁶ wound located in third intercostal space on left side of sternum, injuring left ventricle; patient recovered.

17. Rosa,⁶ operation performed in 1899, wound located in fifth intercostal space on left side, injuring left ventricle; patient recovered.

18. Marion,⁷ wound located in fifth intercostal space, injuring right ventricle; patient died.

19. Maselli,⁶ operation performed in 1900, wound located in sixth intercostal space on the left side, injuring left ventricle; patient died.

20. Nanu (Bukarest),¹⁰ operation performed in 1900, wound located in third intercostal space, left side, injuring left ventricle; patient died.

21. Watten² reported stab wound of right ventricle penetrating fourth intercostal space on right side; patient recovered.

22. Case reported above, operated upon April 20, 1901, wound located in fifth intercostal space on right side, injuring the right ventricle; patient died.

23. Dr. George Tully Vaughn, operation performed October 12, 1901, wound located on left side in fifth intercostal space, injuring left ventricle; patient died. [A report of this case was read before the Virginia State Medical Society, November 5, 1901.]

From the above report it is seen that out of the twenty-three cases, sixteen died and seven recovered. Wound was located on right side of sternum in two cases, on the left side in twenty-one cases. Pleura was injured in twenty-two cases, and uninjured in one case. Left auricle was penetrated in one case, right ventricle in six cases, left ventricle in fifteen cases. In one case the report does not state what part of the heart was injured.

It is my firm belief that in the future operations on the heart for penetrating wounds will be more frequently performed. The idea that the surgeon is powerless when it comes to treating wounds of that organ, must necessarily lose ground, in view of the good results obtained in some of the cases operated upon.

Statistics show that more than ninety per cent. of all heart wounds not operated upon prove fatal. The mortality in the above reported operated cases, although they must be classed among the most serious of heart wounds, is only seventy per cent.

Many years ago Billroth is reported to have said that no surgeon should attempt to suture the heart if he wished to retain the respect of his fellow physicians. Surgery of the heart has advanced far since the time that remark was made. It is beyond doubt that the same authority would consider operative interference advisable in a great number of cases were he still with us. I believe the surgeon is justified in attempting to stop a dangerous hemorrhage from the heart by suturing the wound, just as he would stop a hemorrhage from a vessel by ligation. All wounds of the chest where life is endangered from internal hemorrhage should be explored to the bottom if, in the judgment of the surgeon, the parts are accessible. That the greater portion of the heart is accessible has been clearly demonstrated.

LITERATURE.

1. Elsberg: *Journal of Experimental Medicine*, September, 1899.
2. Watten: *Deutsche Med. Wochenschrift*, September 5, 1901.
3. *Centralblatt f. Chirg.*, No. 18, 1899.
4. Mentioned by Elsberg, No. 1.
5. *Muench. Med. Wochenschr.*, January 16, 1900.
6. Mentioned by L. L. Hill, *Medical Record*, December 15, 1900.
7. *Presse Medical*, No. 2, 1899.
8. *Centralblatt f. Chirg.*, No. 23, 1900.
9. *Ref. Centralblatt f. Chirg.*, No. 7, 1900.
10. *Centralblatt f. Chirg.*, No. 48, 1900.

SOME FACTS ABOUT TETANUS-ANTITOXIN.

By C. FISCH, M. D., of St. Louis, Mo.

There are three reasons why the recent tetanus calamity that has befallen our city has not resulted in many more fatalities than the thirteen deaths reported to the health authorities. These reasons are:

1. The use of tetanus-antitoxin.
2. The fact that the contaminated serum producing the disease contained just enough toxin to prove fatal to a certain weight of human tissue.
3. The observation that a great number of immunizing doses of this serum have been administered per os, and therefore did not exert their toxic effect.

Every one of these three points brings before us features of the utmost interest, and I shall deal with them in succession as succinctly as I can.

I. Our literature is teeming with contradictory reports about the value of antitoxin treatment in tetanus. The percentage of failures certainly is greater than that of recoveries, and the critical observer is ever skeptical as to the latter. We have for a long while known that patients suffering from tetanus not rarely have recovered before the antitoxin era, and even certain rules have been established as to the prognosis of these cases. We all know that a case with a long period of incubation gives from the beginning a much better prospect, and that cases recover that, from the clinical symptoms, appear hopeless. The statistics—if there is anything in these so-called statistics—have not perceptibly improved for the last five or six years. In direct opposition to this disappointment, that we must freely admit, stands our scientific knowledge of the nature of the tetanus-antitoxin, of its property to chemically combine with the tetanus-toxin, and

thus to render it innocuous. I cannot enter here into the general theory of Ehrlich, that, up to date, is best adapted to give an explanation for observations made with the utmost exactness and reliability. Briefly, we know that the toxin has a specific affinity for certain nerve-cells, thus causing the intoxication. On the other side, we know that the antitoxin has a similar specific affinity for the toxic substance, and Ehrlich tells us that the antitoxin is simply a hyperproduction of those groups of the nerve-cell protoplasm that combine with the toxin. If in a test-tube we mix corresponding amounts of toxin and antitoxin, the mixture proves absolutely harmless for the animal injected with it. If we inject the corresponding amounts of both toxin and antitoxin separately into a rabbit at the same time, it will not become sick. Antitoxin injected eight minutes after the toxin, will allow the animal to become slightly sick; one hour later, twenty-four times the amount of antitoxin is necessary; twenty-four hours later, thirty-six hundred times this amount will not save the animal. Better are the chances in guinea-pigs and mice, where even after five to fifty-three hours most of the animals can be protected. In these two species of animals at the time when the typical tetanus symptoms have made their appearance, a great deal of the injected toxin can still be discovered in the body fluids. This is certainly different in rabbits, where, with the first slightest symptoms of the disease, no trace of the poison can be demonstrated.

This fact, and similar ones, show that in different species the interval between the dose producing pathologic effects and between the fatal dose varies greatly, or, as this can be expressed also, that the rapidity of absorption of the toxin varies greatly. Since absorption only and alone means the binding of the toxin to the susceptible cells, in this case to the nerve-cells, it follows that the fatal intoxication occurs in the one species earlier than in the other.

Since we can demonstrate that after toxin and antitoxin have chemically combined there are no physiologically possible means to sever this combination, and that especially a surplus of antitoxin will never achieve this, it is clear that an intoxicated nerve-cell cannot be ridded of the obnoxious substance. Antitoxin will not cure—it can only prevent the intoxication. The recovery or the death of a tetanized animal depends altogether upon the extent of the lesions already produced: if fatal injury has been done, the animal will die; if injuries of a slighter severity, it may recover. The antitoxin subsequently injected will only prevent further progress of the poisoning.

These points must well be considered, if we want to apply antitoxin treatment to human tetanus. It is a well-known fact that in tetanus in man it is a very rare exception that toxin can be found free in the body fluids at the moment when the first symptoms appear. The fatal dose for man is very nearly equal to the dose which makes him simply sick; the same as in the rabbit, the horse, the goat, etc. Antitoxin, after the symptoms have appeared, will, therefore, only be able to eliminate all of the remaining not combined toxin, and otherwise throw the patient on his own resources.

Behring prescribes that for the valuation of the antitoxin treatment only such cases ought to be considered in which the serum was administered not later than thirty hours after the first slight symptoms, and where a certain amount of antitoxin had been used. But even with this restriction the results obtained are not becoming satisfactory. The last *Deutsche Medic. Woch.* again brings an article in which four such cases, surgical ones, that fulfilled all the conditions

of Behring more than fully, ended fatally. A number of other similar ones have been reported.

Owing to the great rapidity, therefore, with which in man the tetanus-toxin is firmly fixed to the nervous system, we must not expect great effects from antitoxin administration; all of the methods intended to bring the antitoxin in more rapid contact with the forms of intoxication (intracerebral, subdural, etc.), have no scientific basis. Nevertheless, for the reasons mentioned, antitoxin ought to be used in every case of tetanus; and the general opinion about its efficacy will be changed when it will have become customary to use it prophylactically wherever suspicious injuries are dealt with.

That in our epidemics the number of fatal cases has not been greater is certainly partly due to the antitoxin. The distribution of the toxic serum lasted for two weeks, and nearly sixty bottles had been dispensed. Antitetanus serum was injected in a great number of cases even before the symptoms appeared (in one case where fortunately the first muscular stiffness was witnessed, recovery followed), and none of them developed tetanus. None of the cases that showed an advanced stage of the symptoms recovered.

II. We had to deal not with an infection, but with an intoxication by the tetanus poison. The serum was not contaminated with spores, but was the serum of a horse which was at the end of the incubation period of tetanus. If drawn three days later, it might have proved comparatively harmless, because, in the horse, the absorption is very rapid and complete, so that a horse with developed tetanus carries very little toxin in his blood. Owing to this fact, each bottle of serum contained a limited amount of toxin, equal in all of them. Exact experiments showed that 0.1 c.c. of the serum was the fatal dose for 300 grammes of guinea-pig weight. Comparing the average weight of the children that succumbed to tetanus after injection of this serum with the fact that a greater weight in other patients prevented a lethal issue, we arrived at the conclusion that in 10 c.c. was contained the approximate fatal dose for a human being fifty pounds of weight. This of course elicited the very important and valuable information that the susceptibility for tetanus-toxin in man is nearly equal to that of the guinea-pig, and about half that of the horse. If there had been spores or bacilli in the serum, not such a large percentage of the patients, and especially not, as a rule, the older ones, would have survived. The amount of toxin in such a case would have been illimitable.

That many of the patients died with a great amount of free antitoxin circulating in their blood, we could demonstrate in one case particularly. Here, forty-eight hours before death and one day after a tetanus-antitoxin injection, a lumbar puncture was made and some cerebro-spinal fluid withdrawn. With a certain amount of this fluid we were able to protect animals against the fatal dose of toxin. Nothing could more clearly show the correctness of the above made remarks.

For no infectious disease has there been as yet a chance to approximately determine the relative toxic susceptibility of man and those animals for which numberless experiments had established the fatal dosage of bacterial toxin.

III. In at least fifteen cases the development of tetanus was prevented by the administration of the serum by the mouth. These were all cases in which it was intended to immunize the members of the family surrounding the diphtheritic individual. In no case was any bad effect noticed. Although this fact has, as you see, a great bearing on the extent to which the accident went, it does not bring

out anything new. We have known all along that tetanus-toxin is not absorbed by the gastro-intestinal mucous membrane, and it is a fact that active tetanus bacilli are not so rarely inhabitants of human and animal intestines. Why this is so we do not yet know. The results of experiments made in this direction some years ago by Nencki and Ranson contradict each other directly, the one asserting that the toxins are destroyed by the intestinal secretion, the other that they are eliminated intact with the feces. It is, however, established that newborn or very young animals and infants can be intoxicated in this way, and as explanatory of this, a histologic observation is offered. In the newborn (animal and man) and for a short time after birth, the secretion of mucus by the gastric mucous membrane is not present. The epithelial cells of the newborn appear uniformly protoplasmatic, are free from granules and sharply defined towards the free surface. Only later in some places by muci-carmin stain small masses of mucus can be demonstrated, which lie close to the surface, and are distinctly limited towards the protoplasm of the cells. This formation of mucus appears in certain foci, and is in the beginning restricted to the most superficial layer of the protoplasm of the cells. It is possible that the absence or the slight extent of mucin-formation is favorable to the absorption of the toxin.

What has been said about the absorption of toxins by the gastric mucous membrane, obtains as well for the antitoxin. Unless pathologic placental disturbances (hemorrhages, etc.) occur, no antitoxin is transmitted from the mother to her baby before birth. But this transmission takes place by the nursing process, supposing that the mother carries antitoxin of some kind in her circulation. The amount of antitoxin present in the milk is about five per cent. of that contained in the blood. With the advancing age of the infant the antitoxin found in his blood decreases more and more, and disappears finally altogether, notwithstanding the fact that the mother all the time transmits with her milk the same amount of antitoxin as before. This can only be explained by some chemical or physical change in the absorbing cells. Experiments made in this line in earlier years, which gave positive results, have perhaps neglected the small abrasions and injuries especially liable to occur in animal experiments by the stomach tube, since we know that from such denuded areas toxins as well as antitoxins are easily absorbed. This would obtain, too, for experiments in adult human beings, where catarrhal, insignificant epithelial conditions exist in the gastro-intestinal tract.

Although in our case this form of antitoxin administration was a very fortunate *quid pro quo*, it is not to be recommended as a generally indicated method.

AN HISTORICAL RESUME OF THE PROCEDURES INTENDED FOR THE REPAIR OF CLEFT-PALATE, WITH MENTION OF A CASE.*

BY WILLARD BARTLETT, A. M., M. D., of St. Louis, Missouri.

(WITH TWO ILLUSTRATIONS.)

It has been almost a century and a half since the first operation designed to remedy a congenital defect in the roof of the mouth. In 1767 Lemonnier repaired a cleft in the soft palate, and thus gained the distinction of being the first to attempt anything of the kind. From that time up to 1816, the date of v. Graefe's first operation, the feasibility of such a procedure appears to have remained unrecognized. Indeed, most writers agree that practical staphylorrhaphy and uranoplasty owe their origin to three men—v. Graefe (*Die Gaumennaht, ein neuentdecktes Mittel gegen angeborene Fehler der Sprache*, *Journal der Chirurgie und Augenheilkunde*, Berlin, 1820), the German, Roux (*Memoire sur la staphylorrhaphie ou la suture du voile du palais*, *Arch. gen. de med.*, Paris, 1825), the Frenchman and Warren (*On an operation for the cure of natural fissure of the soft palate*, *Amer. Jour. of the Med. Sciences*, 1828) of our own country.

Wardrop and Alcock¹ were among the early operators in England, having reported an unsuccessful case in 1827; but of the pioneers in this field Roux² had by far the widest experience. As early as 1828 he was able to report no less than forty cases, of which twenty-two had proven successful, while in 1854 the same author³ could boast of having made one hundred and forty such operations.

The earlier surgeons had confined themselves to various methods of median suture till Dieffenbach⁴ enriched the technique by his incisions along the alveolæ for the relief of tension.

Fergusson⁵ must be credited with the next step toward making this a trustworthy surgical procedure when he proposed destroying the motor apparatus of the soft palate, that rest might favor the reparative process. This surgeon's⁶ idea was not based on purely theoretical deductions. On the other hand, he demonstrated by dissections that the levatores and the palato-pharyngei, when irritated to action, tend to draw the edges of a cleft asunder, thus diminishing the likelihood of surgical cure. Of Fergusson's⁷ first one hundred and thirty-four cases thus treated, one hundred and twenty-nine resulted in perfect union being obtained. Our own Warren⁸ had in mind a similar idea when he suggested section of the posterior pillars of the pharynx with scissors; and Billroth,⁹ many years later, aimed at the same result when he conceived the idea of breaking off the hamular process—the fulcrum of the tensor palate—with a chisel.

Syme¹⁰ was probably the first, in 1854, to object to all procedures intended to paralyze the palate, on account of their permanent ill-effects; and the opinion gained ground until 1900, when Lexer¹¹ wrote of this step in the operation as possessing historical interest only.

The next advance after that of Fergusson was made by Dieffenbach¹² when he instituted the practice of chiseling off from their lateral attachments the two

* Presented at a meeting of the Society of Dental Science of St. Louis, November 12, 1901.

segments of the cleft bony arch and uniting the same by median silver sutures; a procedure the value of which was attested by Fergusson¹³ as late as 1874, when he wrote that certain cases can be successfully treated in no other way. Still, the method has never been generally accepted, was given unfavorable notice by Mason,¹⁴ as well as by Heath,¹⁵ and is now little used.

No *résumé* of the work done on cleft-palate during the first half of the last century is complete without mention at least of Mütter,¹⁶ of Philadelphia, who had experience with a large number of cases, and who with Liston gave a most exhaustive and detailed description of the operative technique as far as developed up to the appearance of their work on surgery in 1846.

We now smile at many of the suggestions made during this period, which antedated anæsthesia, antisepsis and exact hæmostasis. Cusack¹⁷ had very properly proposed in 1843 that no sutures be introduced till all hemorrhage caused by cutting the flaps had ceased, but Smith¹⁸ went rather to extremes when a few years later he announced that he considered it best to fashion the flaps, then to perform some other operation and introduce the sutures at his leisure after the first sufferer had been allowed ample time to stop all bleeding by rinsing his mouth with water. Imagine one of us affording a patient such an experience in this day and age!

In 1861 v. Langenbeck¹⁹ emphasized the importance, in repairing a fissure of the hard palate, of making flaps consisting of the entire thickness of mucous membrane and periosteum; though J. Mason Warren²⁰ had done practically the same thing twenty years earlier in cutting his soft flaps; a matter which becomes obvious when one considers that it is easier to separate the periosteum from the bone than it is to divide the periosteum and the mucous membrane. It must be admitted, however, that v. Langenbeck's²¹ method of elevating the flaps had a decided advantage over that of Warren, in as much as the German surgeon commenced at the alveolus and worked toward the median line, while our countryman proceeded in the opposite direction. At any rate, the former systematized most carefully the technical suggestions of others who had preceded him, and is given the credit by most German writers at least for a procedure whose five steps will be recognized in what has gone before. The so-called v. Langenbeck operation, as quoted by Lexer,²² consists of (1) paring of median edges; (2) section of muscles; (3) making of lateral incisions; (4) elevation of flaps; (5) introduction of sutures; a method which, modified or as here presented, has been used far more frequently than has any other. As a practical illustration of what may be accomplished by it, I have brought you a patient, Mrs. S., aged thirty-nine, who presented herself for operation on the 2d of April, 1901. She had a median cleft which began just behind the intact alveolus and extended through almost the entire hard palate. According to her account, the fissure did not exist prior to her second year, to which must be added the opinions of three prominent gentlemen, a laryngologist, a dermatologist and a dentist, that the seam in the roof of the mouth was due to inherited lues. However, the two casts kindly made for me by Dr. Lukins show no trace of the patient ever having had a right lateral incisor; this, as well as a study of her profile, forces me to the belief that the entire affliction is of congenital origin.

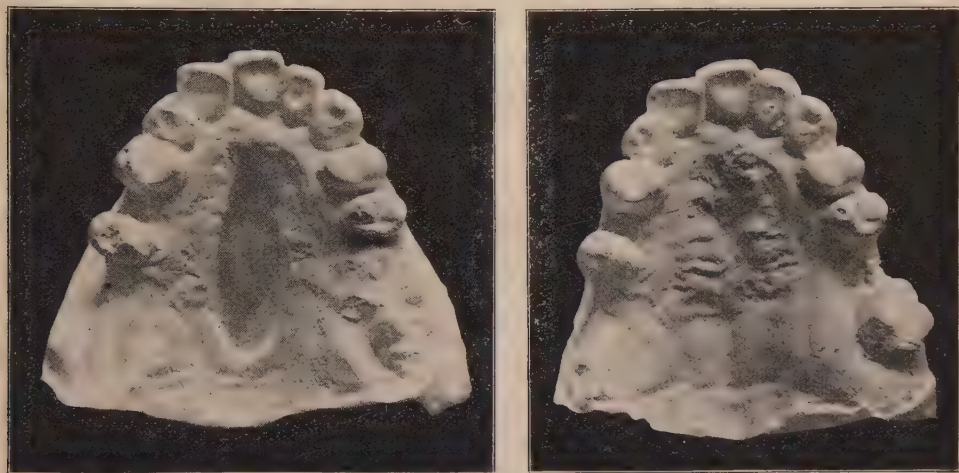
I performed what has been termed the Langenbeck operation, inserting six or eight silver wire sutures, which were left in for a few days. There were no post-operative complications, every stitch held, and the fissure healed from end

to end by primary intention. In seven months the lady's voice has improved markedly, though you still notice a certain vocal defect, which is always present in those who have learned to talk before the operation is performed.

Davies-Colley²³ introduced a most striking perversion of the original v. Langenbeck idea, when he succeeded in bridging the cleft so to speak by a flap which was reflected diagonally across from one side to the other; a method which could have accomplished but little in one of those cases with a high, steep arch, which Pollack²⁴ mentioned as responding so kindly to treatment by the five steps just detailed.

The dangers and difficulties of the operation were minimized at one stroke by Rose²⁵ when he taught us to perform it with the patient's head hanging off the table; and while some surgeons have never become convinced of the utility of this method, still it seems that far the greater number of those who have given it a trial are now numbered among its admirers.

On account of the well-known difficulty in introducing and tying the sutures



used in such operations, many ingenious instruments have been devised by Gibson,²⁶ Heath,²⁷ Price,²⁸ Rawson²⁹ and others to facilitate this part of the work; and while the subject of the instrumental aides is under discussion, it must be noted that Süßmuth³⁰ improved, by use of a prosthesis, the articulation in thirteen cases, in which the operation had resulted favorably as far as wound healing was concerned. Furthermore, application of irritants like cantharides (Diefenbach) or nitric acid (Mason³¹) have been exceedingly useful in exciting granulations to fill a cleft which had been small originally, or partly closed by an operation.

Even partial closure has long been estimated of value in these cases—in fact, Warren³² brought the movable halves of the soft palate together in cases where the cleft in the bony structures was too great to admit of repair, as he said; though Field³³ wrote later that he could imagine no defect too great to be overcome by persistent efforts; still others have encountered cases in which the difficulties at hand made it seem more feasible to close the osseous arch at one sitting, and the soft one at another, as Collis³⁴ long ago advised.

To Brophy³⁵ belongs the credit for the most ingenious and logical method which we possess for correcting this malformation, during infancy. Departing from all the traditional procedures, he went deeper than any of his predecessors, and sought by *directing nature's efforts* in the proper channel to prevent the persistence of a defect; every other surgeon had regarded the divergence of the bony parts as inevitable and, as I have shown above, contented himself with merely bridging the same. Brophy's procedure is well known to most of you. It consists, in short, of wiring together over lead plates, outside the alveolus, the *superior maxillary* bones which show no tendency to unite in the median line by their palatal processes.

Thus it will be seen from the above that a large number of operators have attempted in different ways to remedy the defect by autoplasty. On the other hand, many cases have been successfully treated by transplanting into the cleft portions of tissues other than those which helped to form the imperfect vault. So varied and ingenious have these procedures been that one can but admire the daring of their authors. Gersuny³⁶ took a flap from the tongue, and Schoenborn³⁷ one from the posterior wall of the pharynx, while Passavant³⁸ sewed the uvula to the pharyngeal wall to help shut off the cavities of the nose from the mouth. A flap from the cheek was used by Delarme,³⁹ one from the lip by Rose,⁴⁰ and one from vomer by Lannelongue.⁴¹ Even more striking seems the procedure of Kraske,⁴² who succeeded in relieving a patient by sewing the two inferior turbinated bones into the gap. Blasius,⁴³ Rotter⁴⁴ and Bardenheuer⁴⁵ went even further from the seat of trouble and took from the forehead, flaps with which they managed to accomplish the desired end.

Most sensational of all the heteroplastic operations, however, were the two performed by v. Eiselsberg:⁴⁶ in the first he bridged the chasm with a flap removed from the patient's forearm, while in the second he obtained a most admirable result by sewing into the cleft his patient's little finger, the same being amputated twenty days later.

As cleft-palate and harelip are so commonly associated, there arises frequently the question as to which shall be repaired first, and by far the greater number of authors have agreed that the lip should be sutured during infancy and the more severe operation undertaken at a later period. Branth⁴⁷ as well as Brophy,⁴⁸ however, have lately taken the decidedly logical view of the matter and advanced the idea that the lip should be attended to last, as by so doing the operator leaves himself decidedly more room through which to accomplish the more difficult work within the mouth.

Kingsley⁴⁹ has said that adults outgrow all the troubles in deglutition to which infants thus affected are subject. Hence there remains as our chief consideration in undertaking the repair of cleft-palate, the improvement of the voice, and the age at which the operation is to be undertaken must be that which favors the end in view.

There can be no question that the results in this direction have been better the younger the person operated upon. Still, so many arguments have been advanced for and against early operation, that the ideas of numerous authors must be considered before one can arrive at a definite conclusion on this point.

Beely⁵⁰ says that most of the operations on young children prior to the year 1880 were unsuccessful, and Fergusson⁵¹ advised waiting till the adult age, because the hard palate then takes less part in the deformity. The chances of

success are said by Marsh⁵² to increase as the age of the child advances, a circumstance which Warren⁵³ and Liston⁵⁴ also emphasized long ago when they advised that no operation be done before the patient has reached the age of discretion and is willing to submit to pain as well as voluntarily aid the surgeon in his work. A number of other surgeons have specified precisely in figures what they considered the age of election. This is with Roux⁵⁵ sixteen years; Gross,⁵⁶ fifteen years; Trelat,⁵⁷ seven years; Delbet,⁵⁸ six to seven years; Mason,⁵⁹ five to six years; Koenig,⁶⁰ four to six years; Annandale,⁶¹ two years; Wolff,⁶² ten months; Brophy⁶³ and Karewski,⁶⁶ under three months. The attempt should be made in general, say Smith⁶⁵ and Karewski,⁶⁶ as early as the child's state of nutrition will allow it to be risked, while Malgaigne⁶⁷ gave a practical exposition of his views on this phase of the subject when he did a successful operation nine hours after the birth of his patient.

This backward glance over the history of palate surgery forces the writer to the conclusion that the Brophy operation is for its purpose the best procedure at our command, in as much as it is the only one which gives to the bony arch its proper breadth, the only one which can by reason of the slight hemorrhage caused and the little time required, be performed upon a poorly nourished child at a period when perfect vocalization must be secured or the golden opportunity forever lost.

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A CASE OF NEPHROTOMY, WITH DRAINAGE FOR TUBERCULOSIS OF THE RIGHT URETER—SECONDARY NEPHRECTOMY— APPARENT CURE.

BY H. McC. JOHNSON, M. D., of St. Louis, Missouri.

Dr. M., after having graduated in medicine and resided in a hospital as interne for two years, in good health began to practice in a large city. Shortly afterwards, while riding a bicycle, he had a sudden sharp pain in the right inguinal region, which compelled him to dismount. This gradually faded away after a half hour. When he next urinated he noticed that his water was bloody. After this these attacks of pain, followed by bloody urine, became more and more frequent and intense, and usually occurred while in bed in the early morning. They were relieved by morphine, and lasted usually about an hour. They were accompanied by vomiting, but no fever. The pain extended to the lumbar region on several occasions, and quite frequently involved the perineum. There was no retraction of the testicle and no reflection of the pain down the leg. Frequency of urination was absent.

Examination of the first urine passed just after the attack subsided showed much albumen, much blood, and hyaline, epithelial and granular casts. In the interim the patient felt comparatively well, with occasionally an intimation of pain in the perineum; and the urine cleared up so that only rarely could a blood-cell be found, and no casts were discernible. No tubercle bacilli could be found in the urine. At the point where the ureter passed into the true pelvis there was tenderness on pressure, and some thickening of the deep tissues.

On the 16th day of January, 1900, under chloroform, a cross-lumbar incision was made and the kidney removed from its bed and brought out through the wound. The organ presented a healthy appearance in its external aspect, size and shape, with the possible exception of excessive curve on its long axis. Along the inferior convex border I cut through the cortex into the pelvis sufficiently to admit the index finger. There was no foreign substance in the pelvis, but it was very much enlarged from dilatation, with thin walls. An incision was now made through the pelvic wall into the pelvis, and the ureter freed for several inches. This shared in the dilatation of the pelvis. A catheter could be readily passed into the ureter for about six inches, down to the brim of the pelvis, but no further. Tuberculosis of the ureter was regarded as the obstructing agent, and it was decided to drain rather than do a primary nephrectomy. A rubber tube was passed through the pelvis down the ureter to the obstruction, the kid-

ney replaced, and the wound dressed open. The patient made a good recovery, the wound being drained for three weeks, when it was allowed to close, and healed kindly. One week after cicatrization had taken place the patient had a chill, followed by fever which lasted, with a gradual decline, one week. Pus appeared in the urine in small quantity. The urine was now carefully gone over by Dr. Fisch for tubercle bacilli, and, finding a few acid-alcohol-resisting bacilli in the sediment, he injected two guinea-pigs, with the result that both of them developed tuberculosis.

With these facts before him, the patient now sought health in the mountains of the West, where he remained till May 18, 1900. He did not improve, but, instead, the urethral obstructive symptoms continued, and rather increased in severity, each paroxysm being accompanied by high fever. In addition to the fever and pain, a distinct enlargement of the kidney pelvis from distension during the attacks became plainly evident on palpation. As climate and drainage made no impression on the disease, we determined to give up the fight and sacrifice the kidney. Accordingly he returned to St. Louis, and a few days later I did a nephrectomy. In the kidney, adjacent to the pelvis, was a small abscess cavity about one-fourth inch in diameter. Two small necrotic areas the size of a pea were noticed in the cortex. The pelvis was still much dilated. I removed the kidney, leaving the ureter, believing the ureteric lesion, after being relieved of the contact of urine and function, would subside and the ureter would become fibrous. The patient made a rapid and good recovery, the wound closing entirely within six weeks. He now began to gain in strength, and had no more fever and no pain. In the fall he went to Colorado, in the neighborhood of Denver. He rapidly took on weight, and soon had gained fifty pounds; has had no more of his original trouble, and now, one and a half years since the nephrectomy, is in fine health, subjectively and objectively, and has resumed the practice of medicine.

The diagnosis of tuberculosis of the ureter is based on the following: The cystoscope showed the bladder to be free from disease; the absence of bladder symptoms; the demonstration of tubercle bacilli in the urine; the symptoms of ureteral obstruction during the paroxysms; the fact that the urine passed just after the attacks subsided showed evidences of backward renal pressure in the shape of casts; the site of the pain, tenderness and thickening as felt through the abdominal wall; the impediment at the point of thickening to the catheter passed down the ureter; the dilatation of the renal pelvis.

The small abscess cavity in the kidney at the time of the nephrectomy was probably due to the extension of the disease upwards, as drainage seemed not only to not help the condition, but rather to aggravate it.

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EDITORIAL COMMENT.

CONSUMPTION LEGISLATION.

No one doubts that consumption is a communicable disease, and that efforts should be made to eradicate it. There is much doubt, however, as to the manner and period at which it is most communicable. It is agreed that the danger of communication is the greatest when there is mixed infection, and this occurs when the disease is in its advanced state. The disease cannot be classed with communicable diseases, such as scarlet fever, small-pox, etc., and the same ordinance governing them would not be applicable in one which is chronic and may last for several years or longer. It is not advisable, many times, to inform the person of his or her infection, as it might hasten the end and lessen the chances of improvement or cure; and as the disease is chronic, and many families are dependent for years upon the earning capacities of its afflicted members—for there are many bread-winners among consumptives—it would be unjust and impolitic to brand such members of the community as infected persons, to be shunned and dreaded and deprived of an earning capacity. No family is proof against the disease, for it is acknowledged that it may and does occur in some form in one out of every three.

If legislation against consumption is indispensable, equally necessary is it, if not more so, against certain other diseases in our midst whose victims, often innocent, are saddled with intolerable burdens. If this city has money to spend for disinfection, as the bill calls for, which must of necessity and from the nature of the disease be inadequate, inoperative, insufficient and imperfect, and

after the lapse of a few days worthless, instead of squandering it for disinfection which does not disinfect, it could be more advantageously expended in the establishment of sanitariums or hospitals for consumptives; resting places, where the afflicted would receive proper care and attention, coupled with the more beneficent and curative influences of good food, fresh air and plenty of sunshine, which in themselves are more potent remedial agents than medicines or artificial disinfectants, and will accomplish more in the prevention, restriction or cure of consumption than any known means. Without a suitable hospital for pressing needs, and with no appreciable beneficial results gained from existing legislation in cities where similar ordinances have been in force, it would be folly to pass such a consumptive bill as the one recently presented to the City Council.

It would appear that the future will be more promising if our efforts are directed along educational lines. Special instruction regarding hygiene must be given at home and at school, especially that relating to the care of the body, the proper disposal of the sputa and dejecta, etc., and the individual impressed with the obligations and duties to the community and to one's self.

Instead of so much disinfection, cleanliness would be more sensible; soap and water would be more effectual than the disinfection contemplated.

Furthermore, disinfection of any kind could not be performed without great expense, especially as contemplated in the bill, as the occupant or occupants must be removed and premises not habitable for a day at least, the irritation caused by the drugs being very injurious and causing much discomfort. Some provision would have to be made for the disposal of the occupants of the premises disinfected, and upon return to own home the necessity would arise of disinfecting the temporary quarters vacated.

As the case stands, it does not appear that this community is prepared to make crude experiments with no experience of the past to offer likelihood of a practical return commensurate with the expense necessarily entailed. When hospital and sanitary necessities materialize it will be time enough to call upon officialism to compel the afflicted to benefit by paternalism.

In conclusion, a protest will not be amiss against the unfavorable criticisms of the physician who is represented as objecting to this crude, incomplete and inadequate bill from mercenary motives, a libel upon a profession always charitable and public-spirited, but much abused. On the contrary, the members of the medical profession are ever ready to support and labor for rational and feasible sanitary legislation, and the almost unlimited power provided for in the consumptive bill could very easily be made oppressive and galling, and productive of much injury to the afflicted. Especially so when it is recalled how autocratic, inconsiderate and illegal the acts of some officials and their representatives sometimes are.

The bill amended by the committee of the St. Louis Medical Society is far from perfect. Of necessity any bill that could be framed will be woefully deficient, but as the impression has gone forth that some kind of bill must be acted upon at the present session of the Council, one that contains the fewest objections should be presented.

THE CAUSE OF THE HÆMOSTATIC ACTION OF GELATIN.

Since its introduction to the notice of clinicians by Carnot in 1896 the subcutaneous injection of gelatin as a means of increasing the coagulability of the blood in hemorrhages from internal organs has received wide attention. The French clinicians rapidly took hold of it, employing the treatment particularly in the hope of producing clots within aneurysmal sacs. The Germans (Senator, Leyden, Klemperer) regarded the procedure with much skepticism, and considered the favorable results in aneurism due chiefly to the rigid rest in bed which was enforced in the after-treatment. In the past year or two more favorable results have been reported from the German clinics, especially from the medical clinics, in hæmorrhages from the lungs, from gastric ulcers, typhoid ulcers in the intestines, and from the bladder and kidneys. The results in aneurism have been variable and depend greatly on the form of the dilatation.

Many views have been entertained as to the mode of action of gelatin, and so far its use has been purely empirical. Probably the most widely accepted opinion is that of Lancereaux, who supposes that the gelatin solution is taken up by the lymphatics from the subcutaneous tissues into which it is injected, from which it reaches the blood; that no reaction takes place except at the bleeding point, and that here the clot begins to form on the injured intima of the bleeding vessel. He expresses no opinion as to what the nature of this reaction may be, but gives the impression that the gelatin acts as such.

The question of this reaction has been studied by Zibell, of Greifswald (*Munch. Med. Wochenschr.*, October 15, 1901), who has recently conducted accurate analyses of four grades of gelatin obtainable on the market. He finds that the better grades of gelatin yield 1.5 per cent. ash, of which 41.6 per cent. is calcium oxide, giving a calcium content for the gelatin of 0.6 per cent. Comparing this with magnesium, iron and phosphoric acid contents, which were respectively 0.05, 0.01 and 0.06 per cent., it may be seen that the calcium forms by far the greater proportion of the solid constituents. The usual quantity of gelatin solution injected (200 c.c. of a two per cent. solution) would therefore contain 0.024 gram of calcium.

The necessity of the presence of calcium in the blood in order that coagulation may occur, and the increased coagulation following the addition of an excess of calcium to the blood, is well known, and has led to the administration per mouth of inorganic salts of calcium in hæmorrhages of many sorts. Zibell suggests that gelatin forms a means for the prompt absorption and easy diffusion of calcium into the circulation, and that this is the basis of its action.

X-RAYS IN DERMATO-THERAPY.

When Prof. Roentgen discovered his X-ray in 1895 it was little thought that we had in it a great therapeutic as well as diagnostic agent until Schiff began his experiments in 1897. Since then numerous workers have demonstrated the value of this treatment in various diseases of the skin, especially those of an epitheliomatous and chronic granulomatous character, as epithelioma and lupus. The inflamed, gangrenous and necrotic conditions produced by the use of the rays in their early history were accidents in the hands of incautious and inexperienced workers, for it is now known how to prevent them and to stop treatment by the early recognition of irritation.

Flattering reports from so many workers in this field forces upon us the conviction that a new era in the treatment of certain rebellious diseases of the skin is now opening, and that a new agent has come which will occupy a high place in dermato-therapy, probably even higher and of greater value than the much-vaunted and tedious "Finsen Light Treatment."

No one can read the masterly work of Dr. Francis H. Williams—"The Roentgen Rays in Medicine and Surgery"—and not be convinced of the inestimable worth of this agent and realize the immense boon given to us as physicians by the work of Roentgen. The book of Dr. Williams is an exhaustive study or rather practical treatise upon all phases of X-ray work, dealing quite extensively with the dermatologic part of the subject, which includes not only the literature to date, but the report of quite a number of cases thus treated from his own practice. The rays have proved in Dr. Williams' hands, as in those of other workers, especially efficacious in lupus and epithelioma.

It has been the criticism of many that we have recurrences after this treatment! But is this not so of all other known methods? Can we insure a patient that his epithelioma will not recur after removing it and a wide margin of his integument with the knife? Can we tell him it will not recur after having him spend hours of pain under the arsenical pastes? Can we promise a lupus patient freedom from his disease after months of pastes, caustics, plasters, salves or lotions? These diseases will often recur after any method, and if they do after the X-rays, there is no form of treatment as painless, simple and easy by which to treat the recurrence. It is particularly applicable to these cases, as the ease of its application relieves the despondent, discouraged and timid patient of all fear of active or painful procedure. As the action of the rays are better understood they may prove of value in diseases of skin other than lupus and epithelioma, if not as the specific agent, as an assistance to other methods. Numerous experiments in this direction are encouraging. Of especial interest is the remarkable result lately obtained by Dr. Carl Beck, reported in the *N. Y. Medical Journal*, in a case of sarcoma of the leg.

THE OUTBREAK OF TETANUS IN CAMDEN, NEW JERSEY.

It seems perfectly conclusive at the present time that the outbreak of tetanus in Camden, New Jersey, in connection with the vaccination which has been carried on there, is entirely due to infection with the tetanus bacillus subsequent to the performance of vaccination. In other words, it has been definitely proven that the vaccine virus was pure and not contaminated with tetanus bacilli or tetanus toxin.

The official report of the Camden board of health shows that the vaccine virus was pure, animal experiments failing to show the presence either of the bacillus or the toxin of tetanus. Again, the cases of tetanus which occurred in vaccinated individuals arose too late after the performance of the vaccination to permit the supposition that the infection was given at the time of the performance of the vaccination; the signs of acute tetanus always occur in from five to nine days after the introduction of the bacilli, whereas in every case acute tetanus occurred here in from three to four weeks after vaccination.

The tetanus cases in Camden are to be explained upon atmospheric and telluric conditions which have prevailed in Camden in the past six weeks. There has been a period of dry weather with high winds, so that tetanus germs which

have their normal habitat in dirt, dust, refuse of stables, etc., have been constantly distributed in the atmosphere. In all the cases, it was noticeable that the scab had been knocked off or removed, or else the arm had been injured and infection followed. This accident should in no way deter physicians from advocating the efficacy of vaccination, nor should it make intelligent lay people suspicious of this highly valuable measure.

A NEW THOUGHT ON THE TREATMENT OF CARCINOMA.

Possibly the most bizarre method of treatment for carcinoma that has ever been offered the medical profession is that embodied in F. Loeffler's monograph in the *Deutsche Medicinische Wochenschrift*, No. 42, 1901. Loeffler's contribution goes over, in first order, some writings of the ancients in medicine, and he gives credence to them, just as if they had been written in the light of our present knowledge. Perhaps we are presumptuous in mentioning this point, when the fact is considered that one of the aforementioned ancients is no less a person than Hippocrates himself. Still we must not forget, in our blind homage of the Hippocratic idol, that "things were not as they seemed" in those days, and that much that was good and true and apparently logical in the days when the great Greek master ruled the medical world with his dicta is no longer entertained in aught but reminiscent moments—but not at all as true when we are serious. Loeffler's paper is entitled "A New Method of Treating Carcinoma." He mentions first that malaria has from time immemorial been said to have a remedial effect upon certain diseases, referring to Hippocrates in proof thereof, to-wit: Hippocrates' "Epidemiorum," L. vi., Sec. 6, Kap. v. Further, Trnka, professor of anatomy in the University of Tyrnava, Hungary, in 1775 published an observation of a case of carcinoma of the breast being completely healed by the individual passing through an intercurrent attack of malaria of a few weeks' duration. Loeffler further quotes the observations of Fehleisen and Busch concerning the remedial effects exercised by toxins of the streptococcus erysipelatos upon cases of inoperable cancer. The treatment by injection of these toxins was considered dangerous, as individuals were liable to be attacked with fatal erysipelas.

Loeffler calls attention to the fact that in the middle European countries, where malaria is but seldom found, carcinoma is quite frequent and is continually increasing. This is an interesting fact, although we have no evidence as yet to show that these two conditions are interdependent. Yet in the tropics, where malaria is prevalent, carcinoma is uncommon. This inclines Loeffler to the belief that there is some relationship between these two diseases. He states that a colleague, Dr. Pagel, has lived for over ten years in North Borneo, and during that time he has never seen a case of carcinoma. Loeffler believes that there should be sufficient truth in these facts to warrant some experimental work on carcinomatous patients. He therefore requests those having malaria patients to inject their blood into carcinomatous patients with the hope of curing them.

The theory is plausible, and, of course, warrants some investigation. Whether there is anything of value in it remains to be gathered from future experimental work of the kind indicated. Certainly the present inadequate means at our command in the treatment of cancer would naturally encourage research for something better. Loeffler has called attention to something which may contain either a grain of truth or volumes of it. The problem could easily be solved in

this country, where malaria holds forth for quite a considerable part of the year, and where also we meet with carcinomatous patients in great numbers.

THE QUESTION OF MILK SUGAR OR CANE SUGAR.

In spite of the immense amount of experimentation that is done on the subject of infant-feeding, nothing is more obscure than the relative value of milk and cane sugar. It is known clinically that infants can digest cane sugar, but whether the use of milk sugar possesses any definite advantage is not known. On theoretical grounds American pediatricists have adopted almost a uniform rule to give milk sugar, unless some special abnormal contra-indication exists. But Jacobi has persistently opposed its use and preferred cane sugar. His objection to the use of lactose is that it is frequently impure and is much more readily decomposed by acid-producing bacteria. On the other hand, he finds no particular objection to cane sugar. It is cheaper, purer and just as readily digested.

Some writers assert that the animal sugar is much more readily absorbed and assimilated.

Carter and others have demonstrated that lactose and the sugar from human milk are not identical; in fact, it has been shown that human milk contains two carbohydrates—a crystalline aldobiase and an amorphous substance (animal gum).

It is therefore questionable if we really imitate human milk sugar by giving lactose.

Still, cane sugar given in excessive amounts, as in condensed milk, is almost invariably followed by rickets. The induction of nutritive disturbances on such a diet is well known, so that it cannot be said that cane sugar possesses no objectionable features.

The adaptation of the infantile organism is often remarkable. Exact observations of the relative value of these sugars are wanting. It seems therefore unwise to make dogmatic statements on the subject. The clinician will rather have the privilege to use either form, according to the individual conditions present in each case.

MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE.

IN CHARGE OF

JESSE S. MYER, M. D.

The Diagnosis and Therapy of Esophagus Diverticula.—MAYR and DEHLER, Wuerzburg (*Muenchener Medicinische Wochenschrift*, September 10, 1901).—Since the introduction of the œsophagoscope the diagnosis and treatment of pulsion diverticula of the esophagus have been greatly simplified.

In the case here reported not only was an absolute diagnosis possible, but also the exact position and dimensions of the diverticulum were ascertained. After a long and resultless medical treatment of the patient, a radical operation was done, in which the diverticulum was ligated and removed. This was accomplished through an incision made along the right sterno-cleido mastoid muscle at the level of the hyoid bone. The macroscopical and microscopical examination of the pouch showed that it was of traumatic origin; a pharyngo-œsophagocele traumatica. The author recommends an early operation in all such cases. Up to this time the operative procedure has proven entirely satisfactory, since there have been no recurrences in those cases in which the diverticulum was successfully removed.

The Diagnosis of Deep-Seated Diverticula of the Œsophagus.—ZWEIG, Berlin (*Deutsche Medicinische Wochenschrift*, August 15, 1901).—In connection with the report of four cases of deep-seated diverticula of the esophagus, the author describes a simple method of differential diagnosis. It frequently becomes necessary to differentiate between an idiopathic dilatation and a diverticulum. In such cases two gastric sounds are introduced, the one until it reaches the point of obstruction in the œsophagus, the other into the stomach. A small quantity of methylene blue solution is poured through the former into the dilated œsophagus. The tube in the stomach is now slowly withdrawn; if the methylene blue solution is contained in a simple idiopathic dilatation of the esophagus, some of it will pour out through the withdrawn tube when it comes in contact with the liquid. If it be contained in a pouch or diverticulum, none of it will pass out with the tube. This method is simple, and proved satisfactory in the four cases.

In all of them the murmur described upon swallowing was absent; gastro-diaphane revealed nothing, and the Roentgen rays were successful in one case.

Diagnosis of Pharyngo-Esophageal Pulsion Diverticula.—SCHMILINSKY, Hamburg (*Deutsche Medicinische Wochenschrift*, No. 33, 1901).—This case presents a typical pharyngo-esophageal pulsion diverticulum. The post-mortem revealed its existence on the posterior wall at a point uniting the pharynx and œsophagus. It was about 4 cm. in depth, and its opening admitted of the introduction of the little finger. The diagnosis was made intra vitam through the aid of the Roentgen rays and the œsophagoscope. The symptoms of the patient were those of obstruction of the œsophagus. The employment of the Roentgen rays permitted the exclusion of aneurism of the aorta, even though some of the physical signs pointed to the existence of such.

The simultaneous use of the esophagoscope and sounds enabled the author to make an unquestionable diagnosis, which, in fact, was verified by the specimen obtained from the post-mortem. The introduction of the metallic sound was

checked, as was shown by the X-rays, at a point corresponding with the arch of the aorta. The ingestion of bismuth, however, cleared up any doubt as to the cause of this obstruction, producing a dark field at the point of hinderance.

The author recommends, as the result of very satisfactory experience, the use of the esophagoscope and the Roentgen rays in these cases.

Traumatic Stricture of the Esophagus.—BUNTS (*The Medical News*, November 23, 1901) reports eight cases of stricture of the esophagus caused by the accidental swallowing of lye. He used in every case a series of graded, double-bulbed, olive-shaped bougies. On each staff there are two bulbs, the first being smaller than the second. This seems to permit one to follow up the advantage gained by passing one bulb, by the immediate passage of one a size larger. Much depends upon the depth and degree of the stricture as to the rapidity with which this dilating process may be carried out. It was found unnecessary to resort to such radical measures as retrograde dilatation, gastrostomy or gastrotomy. In one case of seventeen years' standing, this gradual process proved quite successful.

Chronic Ulceration of the Stomach Simulating Cancerous Disease: Relation of a Case of Gastro-Enterostomy with the Murphy Button; Recovery.—ROSS and O'REILLY, Ontario (*Philadelphia Med. Journ.*, November 9, 1901), report a case in which the gastric symptoms pointed to the existence of carcinoma of the stomach. The patient, who was but twenty-eight years of age, declined rapidly, in spite of therapeutic measures. The symptoms were chiefly those of obstruction of the pylorus. They had extended over such a period of time as to indicate the presence of an ulcer, but the thickening that could be distinctly made out led to the belief that carcinoma had developed on the base of the ulcer.

An operation revealed a growth at the pylorus, involvement of the perigastric lymphatic glands. The stomach wall looked exactly as it does in cancer. The case was considered hopeless, and it was decided to give temporary relief through gastro-enterostomy. Eleven months after the operation the patient weighed one hundred and forty pounds, was the picture of health, and presented no gastric symptoms whatever. The tumefaction apparently disappeared entirely.

Are not Some Patients Said to be Afflicted with Gastric Ulcer Really Suffering from a Different Disease?—W. HALE WHITE (*Lancet*, June 29, 1901), maintains that many cases occurring, especially in women, and classified as gastric ulcer, are really instances of some other undescribed malady. He suggests that this disease occurs between the ages of twenty and forty, its chief symptoms being gastric pain, nausea, and hematemesis. These symptoms are not dependent upon ulceration of the stomach, any ulceration that may be present being quite superficial, and no more than might occur secondarily to the hemorrhage. In these cases, though the gastric symptoms extend over years, the patient is not wasted, and has none of the mechanical effects of gastric ulcer, such as adhesions, pyloric stenosis, or subphrenic abscess, etc.

The prognosis is good, though relapses are frequent. The disease is probably related to chlorosis, since so frequently associated with it. Operations and post-mortems have frequently failed to reveal ulcerations in such cases. The author recites a number of them in support of his view.

Acute Dilatation of the Stomach, with Illustrative Cases.—THOMPSON, London (*Lancet*, October 26, 1901).—Acute dilatation of the stomach is probably not so infrequent as supposed. Various degrees of severity may be found between the slighter forms, such as occur in acute specific fevers, and the most severe and rapidly fatal cases. Treatment of the severer forms has proven of no avail in checking the disease. Four cases are reported by the author: one is an example

of acute dilatation suddenly supervening upon a chronic one, consequent upon a pyloric tumor; the second followed a surgical operation for renal calculi; the third followed an exploratory abdominal section, and the fourth occurred as a complication of pleurisy and pneumonia.

All cases may be arranged in the following groups: (1) those in which the dilatation occurred without any apparent cause, and in which after death no other lesion was found; (2) those in which after death some other lesion has been found; (3) those in which the dilatation has followed some surgical operation and in which after death no other lesion is found. There is also a group of cases in which in debilitated subjects the ingestion of a large quantity of badly masticated food appears to have been the exciting cause. In many cases dilatation of the stomach is probably the local manifestation of general collapse.

A Case of Duodenal Ulcer with Retroperitoneal Perforation.—WAGNER, Hanaw (*Muenchener Medicinische Wochenschrift*, August 27, 1901).—Perforation is the most frequent complication of duodenal ulcers. As a rule this takes place into the peritoneal cavity, or into one of the neighboring organs. If the ulcer occupies a portion of the duodenum not covered by peritoneum, it may rupture posteriorly without involving the peritoneum in any way, and may lead to an abscess in the inguinal region. Such was the case in this patient. Besides the usual symptoms of duodenal ulcer, a tumor appeared in the inguinal region, containing a dark brown fluid. A diagnosis of retroperitoneal perforation of an ulcer on the posterior wall of the duodenum was made. The patient was too weak to undergo gastro-enterostomy. The post-mortem verified the diagnosis. A sound introduced into the perforation, passed along the spinal column just under the peritoneum, and appeared in the fistulous opening over Poupart's ligament.

The Ameba in Epidemic Dysentery.—JAEGER, Koenigsberg (*Berliner Klinische Wochenschrift*, September 9, 1901), observed, during two distinct epidemics, some thirty cases of dysentery. In all of them he demonstrated amebæ corresponding in all of the chief characteristics with those described by Kartulis in Egyptian dysentery. They differed from the harmless protozoan species found in the intestines in the following characteristics: They co-exist only with the dysenteric process. Their number and activity depends upon the duration of the case, being greatest in the earlier stages. They are found in greatest numbers in stools composed of pure blood, pus and mucus, and decrease as the stools become feculent. They have the power of taking up red blood corpuscles. The harmless forms are easily cultivated; these with the greatest difficulty. They are pathogenic for cats. The author succeeded in infecting three out of four. Many epidemics of dysentery have been reported in which the amœba could not be demonstrated. This points to the existence of two forms of dysentery: in the one the ameba is the exciting cause; in the other, such organisms as are described by Flexner, etc.

The author feels that his opportunity to observe the ameba in two epidemics in Northern Germany enables him to reach important conclusions as to their pathogenicity.

The Treatment of Dysentery.—PLEHN, Kamerum (*Deutsche Medicinische Wochenschrift*, September 26, 1901).—In spite of objections raised to the calomel treatment of tropical dysentery, the author still maintains that it gives ideal results. In support of this treatment he presents the records of thirty-eight cases treated in the European Hospital within ten months. Of these, two died, four had relapses, fourteen were very light, and nineteen severe. It is in the latter class that the efficiency of the treatment was best shown. As soon as dysentery is suspected the patient is given an ounce of castor oil. Following this a half to one grain of calomel is given every hour until twelve doses are disposed

of. This is kept up for three or four days, together with the necessary hygienic measures for preventing stomatitis. Should this occur in spite of these precautions, it is not necessary to interrupt the treatment. The calomel is followed by ten-grain doses of subnitrate of bismuth twelve times daily for three days. During this time the bowels should be evacuated when necessary. Milk diet is preferable where practicable. This is not always possible in the tropics. Great care should be given to the diet for months after the dismissal of the patient, in order to prevent relapses. The action of calomel in dysentery is attributable to its antiseptic qualities.

Three Contributions to the Pathology of the Omphalo-Mesenteric Duct and Meckel's Diverticulum.—KARAJAN (*Wiener Klinische Wochenschrift*, July 25, 1901).—The first case, a patient now twenty years of age, had, during his first year of life, an umbilical fistula, through which feces was frequently evacuated. It healed over, but ruptured a few times in the course of two years, emptying a quantity of pus. During his later years he had occasional paroxysms of pain in the right inguinal region accompanied by vomiting, constipation and fever. At the time of his admission to the hospital he presented these and other symptoms of appendicitis. An operation was done, revealing a persisting omphalo-mesenteric duct that had undergone pronounced inflammatory processes. The umbilical end was completely obliterated while the intestinal end was patent, thus forming a sort of diverticulum. Diverticulitis, and consequent obstruction of the bowel presented symptoms that were mistaken for appendicitis.

The second case was in a male, thirty-eight years of age, presenting symptoms of peritonitis and intestinal obstruction. The surgical operation and subsequent post-mortem revealed a long Meckel's diverticulum, gangrenous almost in its entirety. Its free end was attached through old inflammatory adhesions to the mesentery, and ended in an abscess cavity containing a quantity of pus and two ascaris lumbricoides. An acute obstruction of the bowel had occurred through the incarceration of a portion of the small intestine in the loop formed by the diverticulum.

The third case was one in which Meckel's diverticulum was found adherent to the wall of a hernial sac, in a man thirty years of age. The patient had had no symptoms referable to the diverticulum, or any inflammatory processes within it which might have resulted in the adhesions between it and the hernial sac.

Two Cases of Intestinal Obstruction Diagnosticated by the X-Rays.—RUDISJICINSKY (*New York Medical Journal*, September 28, 1901).—The diagnostic value of the X-ray in medicine can no longer be disputed; two cases in the experience of the author demonstrates its great value in determining the cause and position of intestinal obstruction. In the one case a foreign body, swallowed by a boy ten years of age, produced complete obstruction. Operation was contemplated. The Roentgen rays were employed, and the body was located at the ilio-cecal valve. Hypodermic injections of atropine were employed, and the body passed without operation.

In another case invagination of the lower portion of the ileum was suspected. The X-rays revealed a foreign body located just under the umbilicus. Operation verified the X-ray findings.

The author recommends the ingestion of an undigestible pill and the subsequent employment of the X-rays to determine the location of an intestinal obstruction. The pill, containing a bit of lead, is stopped in its onward course at the point of obstruction. The point may then be noted on the fluoroscope.

Atony of the Intestines Treated with Physostigmin.—C. VON NOORDEN, Frankfurt (*Berliner Klinische Wochenschrift*, October 21, 1901).—The action of phy-

sostigmin upon the muscles of the gastro-intestinal tract has not been properly appreciated and utilized by physicians. The veterinarian only has realized its usefulness in evacuating the bowels through its creation of increased peristalsis. During the past year the author has used this drug in the treatment of certain gastro-intestinal disturbances and has realized splendid results. He considers the fears that have heretofore existed with reference to its use unfounded, and advises its more liberal employment in the future.

It was found especially efficacious in relieving tympanites, even as it is met with in typhoid fever. The action was in every case prompt and satisfactory. It is best to begin with small doses (0.00025) and gradually increase to the maximum dose (0.001) if necessary. The judicious use of atropin will control any unpleasant symptoms which may arise from the employment of this drug.

SURGERY.

IN CHARGE OF

WILLARD BARTLETT, M. D.

The Diagnostic Value in Kidney and Abdominal Surgery of an Examination of the Functions of the Kidney.—CASPER (*Centralblatt fuer Chirurgie*, November 2, 1901).—The author examined separately specimens of urine from the two kidneys according to the method proposed by himself and Richter, namely, determined the amount of nitrogen (N), the amount of sugar produced by the injection of phloridzin (Sa), and the reduction of the freezing point (D). In cases where the kidneys were healthy he got equal values from both, but where one organ was diseased all three figures were smaller than on the healthy side. In a case of right-sided renal colic the findings were: right, D, 0.95; Sa, 0.8; N, 0.24; left, D, 1.06; Sa, 1.2; N, 0.38. An operation showed that there was really a stone in the right organ.

A second case was most interesting: there appeared clinically a tumor where the right kidney should have been, but where the above tests were made it was seen that neither kidney was functionally diseased; so the author concluded that the tumor must be something else. At the operation it was proven that the tumor was an adenoma of the suprarenal capsule, which had grown around the kidney.

A third patient complained of some pain in the left side, and the kidney was felt to be slightly enlarged; examination of functions showed: right, D, 1.64; Sa, 1.6; left, D, 1.67; Sa, 2.07; showing that the left kidney, even if diseased, was capable of more work than the right. At an operation it was found that several large cysts lay on the surface of the organ, but did not communicate with the interior. In the next case a correct differential diagnosis was made between pyonephrosis and an immense retroperitoneal abscess. In later cases the author succeeded in preventing kidney operations from being made on cases of gall-stones, as well as on cases of nephralgia.

Gunshot Wounds of the Abdomen.—ROBINSON (*The Kansas City Medical Record*, October, 1901).—In the Crimean war ninety-two and five-tenths per cent. of the British shot in the abdomen died, and since the introduction of asepsis seventy per cent. of the one hundred and sixteen men in our own army shot through the same region in the years '98 and '99 met a similar fate. Of course the explanation of this fact that such wounds are much more highly fatal in war than in civil life is that a much longer time must elapse during campaigns before a laparotomy can be performed. The Philippine and Boer wars have

taught us that a greater per cent. of these cases recovered without an operation than with it. The author saw forty-five such cases, of which eight died before help could be rendered. Thirty were treated without operation and two-thirds of them got well. In fact, all sort of visceral injuries were known to recover without a symptom.

Carcinoma of the Cæcum.—MAYO (*The Journal of the American Medical Association*, October 19, 1901).—The technique is described as follows: Through a lateral incision the peritoneum along the outer wall of the cæcum and colon is divided, the tumor raised and the vessels tied. The colon is then cut across and closed, and after division of the ileum the smaller gut is connected to the larger by an end-to-side anastomosis. The author reports two successful cases. His first patient was thirty-eight years of age, and the diagnosis, appendicitis. The cæcum and eight inches of the ileum were removed, a lateral anastomosis being made with the Murphy button. Two years after the operation the patient is free from recurrence. The second case was somewhat more extensive, necessitating removal of fourteen inches of the ileum. Here a lateral anastomosis was made with the transverse colon, and this patient, like the other, made an uneventful recovery.

The Operative Treatment of the Intestinal Perforations of Typhoid.—HARTMANN (*Bull. et Med. de la Soc. de Chir. de Paris*, T. xxvii., p. 8).—We must agree with Keen that surgical interference is to be regarded as possessing the greatest value in these cases. The later in the disease the perforation, the more favorable the prognosis. Of those operated upon during the first three weeks of the typhoid, 18.75 per cent. have been said to recover, while of those similarly treated after three weeks, 52.38 per cent. were so fortunate as to get well—a surprising difference. Where the operation was done during the first twenty-four hours after the attack, 25.33 per cent. were saved—only 13.63 per cent., however, when it was done after this period.

A Plea for Immediate Celiotomy in Penetrating Gunshot Wounds in Abdomen in War.—FLAGG (*Journal of the Association of Military Surgeons*, August, 1901).—This author champions this idea, although he is aware that military statistics are all against it. He says that the fatality after wounds with small caliber bullets is not less than by those of large size, as is commonly supposed; for in the Spanish-American war sixty-five per cent. of those shot through the abdomen died, while in the last six wars in which the old-fashioned bullet was used but sixty-one per cent. suffered a like fate.

The only question of operation in such cases is one of the facilities at hand, because transportation is certainly better borne by a man whose intestinal wounds have been closed than by one in whom they have not. The author shows that conditions favorable to operation can almost always be secured, so the question really resolves itself into the finding of a surgeon trained to do the work. Why need these patients die in military and not in civil practice?

Gunshot Wounds of the Stomach.—DOUGLAS (*The Southern Practitioner*, October 7, 1901).—If the hemorrhage be slight, the wound is likely to be one of the stomach alone; and the reverse is also true. Leakage is earlier and more frequent in stomach than in intestinal wounds. The best guide for finding a small hole is the discolored area which surrounds it. When blood is vomited, we can be almost certain that the stomach is perforated. Almost all cases die if not operated upon; but seven out of the eleven instances which the author has culled from the literature recovered after operation.

Failure of Gastro-Enterostomy for Pyloric Stenosis, and Its Prevention.—WEBER (*Beitraege zur Klinischen Chirurgie*, Bd. xxxi., Hft. 1).—The "circulus vitiosus" is by all means the chief accident to be dreaded in this class of surgery. The author thinks this is prevented best in one of two ways: either by the v. Hacker posterior method, or by supplementing the original operation by an entero-anastomosis. Lindner, of Berlin, has been following this latter method, in connection with the Woelfler anterior operation, for a number of years, and with almost uniformly good success. Atony of the stomach and muscular insufficiency of the heart have been the chief undesirable factors with which he has had to contend.

A Case of Laparotomy for Multiple Septic Abscesses and Intestinal Adhesions.—MAYLARD (*The Lancet*, October 12, 1901).—When first seen, the patient presented alarming symptoms of intestinal obstruction, and laparotomy was at once decided upon. As most of the trouble had been referred to the left flank and as this part of the abdomen was further the seat of most complaint, the incision was made here. No sooner was the abdomen opened than a mass of pus gushed forth. But no systematic attempt was made to find its point of origin, for the reason that the patient suddenly went into a collapse; thus the operator was obliged to pack the cavity and put her to bed. All went well for nine days, when symptoms of obstruction set in once more, and on incision another large pus cavity was found. Our author also divided a peritoneal band, and straightened out a torsion, the patient recovering.

Sigmoidopexy for Prolapsus of the Rectum.—MOTT (*Charlotte Med. Jour.*, October, 1901).—Objection is made to excision of the prolapsed portion of the rectum as stitches do not always hold, a large amount of blood is often lost, and serious infection may occur. The following method is preferred by the author: He passes a rectal bougie up to the sigmoid flexure, replacing at the same time prolapsed gut. Then an incision down to the gut containing the instrument in the left iliac region, and the part of gut surrounding the end of bougie sutured to the anterior of abdominal wall.

The author did this operation on a patient forty-two years of age who had an eight-inch prolapse; and so successful was the procedure that there was no tendency to recurrence on bearing down. In addition, sensitiveness and inflammation of the prolapsed portion disappeared before the patient was out of bed.

Subcutaneous Rupture of the Intestine.—KARPLUS (*Wiener Med. Wochenschrift*, p. 1, No. 29).—The subject is illustrated by the most interesting case of a man who was wearing a truss for inguinal hernia. The apparatus was struck a heavy blow just over the button, with immediate symptoms of vomiting, pain, etc., which persisted for a few hours and then passed away. At the expiration of two days the man went into a collapse and gave every evidence of perforation of the bowel. At an operation undertaken six hours later there was found a perforation in a gangrenous area, this latter no doubt resulting from the blow above mentioned. The case terminated fatally.

Gunshot Wounds of Abdomen.—BALDWIN (*The Cincinnati Lancet-Clinic*, November 2, 1901).—The histories of two interesting cases were related. Each was operated upon and recovered. The first patient was a young man twenty-one years of age, who had been shot with a thirty-two caliber bullet. At the operation eight punctures of the small intestine and three of the mesentery were found. So good was the result obtained that three weeks later the young man resumed his work in college.

In the second case, as in the first, the operation was performed a few hours after the receipt of the injury. This latter patient sustained eleven separate

wounds in the gut and three in the mesentery. Resection by use of the Murphy button was done, the button passing on the tenth day.

In all such cases the author practices drainage, and his results would indicate the wisdom of his choice.

Splenectomy—Axial Rotation and Death of Spleen; Recovery.—BENNET (*Texas Medical News*, October, 1901).—The patient presented herself with great pain in abdominal region, the left half of which was occupied by a large sensitive mass. This latter had been present for four years, and about two months previous to operation had suddenly commenced to grow, and continued till double its former size. From the patient's description it is sure that a certain degree of peritonitis must have accompanied these manifestations. At the operation the tumor was found to consist of the spleen, which had been twisted five or six times on its axis. Numerous adhesions were present, and no hemorrhage ensued when the organ was torn, showing that circulation had been entirely cut off.

Chronic Peritonitis.—SUPINO (*Gazzetta Degli Ospedali*, September 29, 1901).—As a satisfactory and complete recovery generally takes place in these cases, the author writes the logical conclusion that operation is not advisable. The general purpose of the surgeon who is called upon to treat such a case must be, then, first to tone up the resistive powers of the patient, and, second, to cause absorption of the ascites. The former purpose is best accomplished by the use of iron and arsenic, the latter by local application of the tincture of iodine. Durant's iodo-iodid has been injected subcutaneously, and with good effect, in those cases where there has seemed to be a tuberculous lymphatic habitus. Prominent mention is also made of the advantages to be derived from proper climatic surroundings, especially the Italian sea-coast.

Surgical Interest of the Subperitoneal Tissue.—TAYLOR (*Georgia Journal of Medicine and Surgery*, October, 1901).—There is a vast amount of literature which concerns itself with the peritoneum, but scarcely anything is written of the sub-peritoneal tissue. This latter not only underlies the peritoneum itself, but is continued as processes around all of the structures which pass out of the abdomen. Thus it is seen that a post-peritoneal abscess originating in the appendix may spread in almost any direction and to almost any locality.

The author next goes into a gross and microscopic discussion of the tissue under consideration, which is too lengthy for reproduction here. It may be the seat of tumor formations, inflammations or atrophic changes, while collections of pus, blood, lymph and other foreign substances may take place within this tissue.

Intestinal Obstruction.—BUNTS (*Cleveland Medical Journal*, October, 1901).—Several interesting cases are reported from the author's experience, and serve to teach the important lesson that surgery in such a field can be of avail only if practiced early. In case No. 1, a gall-stone was impacted in the intestine; in No. 2, no anatomical diagnosis was possible at the operation, though it is supposed that a volvulus must have existed. In two further cases the obstruction was due to an inflammatory band, while in the fifth, intussusception was the cause, an infant being the patient. Faecal impaction brought about a stoppage in the next patient, while in the seventh instance, strangulated hernia was at fault. In Nos. 8 and 9 there were constricting bands, in ten an annular cancer, in eleven a volvulus, and in twelve an intussusception; this last patient made a temporary recovery after operation, but the trouble recurred and he died on the 13th, a few weeks later. Ten of the above individuals were operated upon, and of the number seven died, most of them from the exhaustion coincident upon a late operation; consent to an early one being refused in most cases.

Removal by way of the Stomach of a Foreign Body from the Œsophagus.—WILMS (*Deutsche Zeitschrift fuer Chirurgie*, Bd. lx., p. 348).—This most unique operation was performed upon a patient who had swallowed a set of false teeth. After an incision in the median line above the umbilicus, a circular purse-string suture was made in the anterior wall of the stomach, and in the middle of the circle an incision was made. Into this opening in the viscus the finger was thrust, and after the purse-string had been drawn tight around it, was carried on into the cardia, the stomach wall being inverted before it. The foreign body was in this way quite easily reached, and after its extraction the continuity of the stomach wall was re-established and the patient made a perfect recovery.

The Knot Within the Lumen in Intestinal Surgery.—CONNELL (*Journal of the American Medical Association*, October 12, 1901).—This article marks an advance in the surgery of the hollow viscera. Not only has the author shown by his logical theoretical deductions that his method is the best, but can demonstrate by numerous animal experiments as well as by nineteen operations on the human that this suture is free from most of the objections which have rendered the older ones so difficult and dangerous, even in the hands of the most accomplished surgeons. For the technical details the original article must be consulted. The author's claims for the superiority of his form of stitch are as follows: 1. Less danger of leakage at stitch-hole. 2. No yielding of the stitch. 3. Amount of adhesion around suture-line diminished. 4. Small diaphragm. 5. Less danger of gangrene. 6. No foreign body, sutures all pass away. 7. Time diminished.

Surgery of the Biliary Passages.—DEAVER (*The International Journal of Surgery*, October, 1901).—Gall-stones occur in one out of every ten people, but of the whole number not more than five per cent. are pathological as regards manifestations. However, in any case, the patient may suddenly have life or health threatened; in fact, the biliary apparatus must be taken into consideration in making the diagnosis of every obscure disease of the upper part of the abdomen. The colic is caused by an inflammatory spasm of the bladder and ducts, nature making an effort to remove the stones; this is not often successful however. Each attack predisposes to others and at the same time renders an operation more difficult; then when icterus has come, serious hemorrhage is likely, and still we cannot often postpone operation in an icteric patient. The development of phlegmonous cholecystitis is almost always fatal. Serious bleeding has been met by the author by packing, the use of opium and saline infusions. Where the bladder is to be drained, this is preferably opened into the intestine, though external fistula can be more safely made. In most cases an inflamed gall-bladder should be removed like an inflamed appendix, and the surgeon should accomplish this before serious anatomical change has taken place, and before the kidneys, etc., have been damaged by unusual materials which they have been called upon to excrete.

THERAPEUTICS.

IN CHARGE OF

WALTER BAUMGARTEN, M. D.

The Treatment of Croupous Pneumonia Critically Considered.—P. R. PEL (*Therapeutic Monthly*, July, 1901. Transe.).—In no disease is it so difficult to draw trustworthy conclusions in regard to any given method of treatment as in pneumonia. Many factors, such as age and circumstances, social, local and epidemic, influence the course of the disease, and preclude just comparisons between the material of individual observers. A review of the literature leads Pel to the opinion that we as yet possess no remedy by means of which we are able to shorten the course of pneumonia, or can immediately influence favorably the pathological process itself. It would be a fact as yet unparalleled that a disease which, like pneumonia, is conditioned upon a distinct kind of organism, should be favorably affected by heterogeneous remedies like pilocarpin, salicylate of sodium, the iodides, digitalis, quinine, etc. Therefore, we should not, he thinks, interfere in the pathological process, so that the natural healing qualities of the diseased organism may perform their duty unimpeded. A pneumonic patient is better taken care of by a quietly observing physician who only treats symptomatically than by one who thinks he is able to stifle the disease in its incipency by heroic so-called specific remedies.

But non-interference means doing something more than looking on and letting matters go by the will of God. It is the first duty of the physician in every case of pneumonia to look after hygienic-dietetic directions: pure air, neither too hot nor too cold, frequent change of position of the patient, careful attention to skin and mouth. The diet should be liquid or pulpy, strengthening and nutritious, and should be administered in frequent small doses. Milk and milk foods, soup, bouillon and eggs should be given. Abundant drinking not only quenches severe thirst, but also promotes elimination, and, consequently, the purification of the juices of the body. Headache is often made bearable by application of cold. Dover's powder is often the best remedy in the first days for the irritation of the cough, the stitch in the side, and the difficult expectoration. If respiration is rendered difficult by severe stitch in the side, Pel considers frequently repeated injections of morphine at the site of pain a most efficient measure. "Whoever is afraid of morphine may try to allay the pain in the chest by subcutaneous injections of carbolic acid;" in milder cases moist, warm poultices or ice-bags may be used, according to individual reaction. Stools should be regulated by some purgative. Sleeplessness should not be combated with hypnotics, unless absolutely necessary, in which case Dover's powder or small injections of morphine are preferable. Toward the end of the first week, when râles begin to appear, Pel usually administers an expectorant in order to liquefy the secretions and to facilitate and promote expectoration.

At the time of the crisis, and after, the functions of the heart and of the nervous system should be carefully watched; but Pel prefers to refrain from unnecessary excitants. During convalescence he does not allow the patient to rise until all the local symptoms have disappeared, the strength returned, the condition of the blood improved, and the pulse has become strong and normal. Tonics, principally iron, may favor the cure of the remaining anæmia. The physical strength will return with nutritious food.

The irregular, atypical pneumonias, however, make higher demands upon medical science. In a general way the pulmonary symptoms step into the background while those of the disturbed cardiac and cerebral activity become more prominent; almost always cardiac weakness, as well as weak-

ness of the body, first demand attention. They require a stimulating treatment, and success depends upon seizing the right expedient and the right moment. Of stimulants the first is alcohol. Its administration is indispensable in alcoholics, and it would be a grave error of judgment to withhold it from individuals who are accustomed to it. It is also a prophylactic against collapse, general debility, and cerebral symptoms. The time before and after the crisis is an important one for the administration of alcohol. It should be given warm, in frequent, small doses; champagne is an excellent form. The most reliable stimulant in threatened heart weakness is camphor, primarily given in small doses by mouth; in more threatening danger to life, in large doses subcutaneously in combination with ether.

As a stimulating and refreshing procedure, great value lies in regular sponging of the usually dry, hot skin with cold or tepid water to which a little vinegar, cologne water or brandy has been added. These ablutions may be done every one, two or three hours regularly. The irritation of the skin, so produced, acts reflexly upon the functions of the vital bulbar centers, and may secondarily influence the elimination of injurious elements by increased metabolism. In regard to cold baths in pneumonia, clinical experience differs widely; Pel thinks that, considering the number of contra-indications, one may well forego the practice.

Attacks of pulmonary oedema are almost exclusively the consequence of cardiac weakness, and should be considered as engorgement manifestations. In such cases stimulants, together with skin irritants, should be employed; in rare cases venesection. Extensive sinapisms and injections of camphor have proven most effective.

For the cerebral symptoms, which often appear after crisis, principally in drunkards, but often in other pneumonic patients, chloral hydrate constitutes the most effective remedy.

The Treatment of Pneumonia.—DE LANCEY, Rochester (*Jour. A. M. Assoc.*, November 9, 1901, p. 1237).—The most serious element in pneumonia is the toxæmia, which causes degeneration of the heart muscle, while it at the same time increases peripheral resistance. The second element in degree of seriousness is the amount of lung involvement existing at any one time.

The patient should be put upon a fluid and, so far as possible, sterile diet. A large amount of pure water should be administered in order to flush the excretory organs; it may preferably be given in small quantities at frequent intervals.

The first aim of treatment should be the elimination of toxins. As the lungs, and often the kidneys, are directly involved in the morbid process, the bowels and skin remain as the eliminative organs. (1) At the beginning of an attack the bowels should be opened by an initial dose of calomel (0.5 gram), and kept so by occasional doses of saline laxative. This will not only aid in elimination, but will often help to relieve the distention of the right heart. (2) "To keep the skin active there is nothing more efficacious and less harmful than the proper use of the hot mustard foot-bath. This can be given with next to no disturbance of the patient, the tub being put into the bed, with most excellent results as far as sweating is concerned. These baths may be kept up at four-hour intervals throughout the course of the disease." . . . Frequent and thorough cleansing of the mouth with a mildly antiseptic wash should be carried out.

The second indication is the support of the heart. The two most useful stimulants in pneumonia are strychnine and alcohol. Stimulation should not be deferred until the heart begins to fail. As soon as the diagnosis is made, strychnine may be begun in doses of 0.002 grm. every four to six hours, per mouth. As the symptoms increase in severity even as much as 0.004 grm. may be given hypodermically every two hours, with the best results. Alcohol is our

next best stimulant, but in some cases seems to produce decided cerebral disturbance. It may then be replaced by ammonium carbonate or aromatic spirits of ammonia. These drugs are usually well borne by the stomach when combined with liquor ammonii acetatis, and administered in milk.

The local treatment of the lung is of importance. "As soon as a portion [of the lung] is shown by physical examination to be in a state of beginning congestion, the prompt and thorough application of leeches, wet cups or dry cups over the part will often stay the process there." "If dry cupping is resorted to, it should be very thorough, the skin and subcutaneous tissue rising up in the cup to as great a height as possible, and turning blue or purple while there." The cups should be left on for half an hour, and the process repeated every four to six hours. With ice the author has not produced the relief of congestion desired.

If evidence of overdilatation of the right heart appears, such as cyanosis, decreasing tension in the pulse, enlarged liver, pulsating veins, and an increase of the area of heart dullness to the right, prompt relief is often gained by removal of eight, ten or twelve ounces of blood from the median vein in the forearm. In cases in which heart failure is imminent without signs of dilatation, hypodermic injections of sterilized normal salt solution may tide the patient over his critical condition. Injections of salt solution by rectum are usually less prompt and far-reaching in their effect.

In cases of restlessness and sleeplessness chloralamide, chloral, Dover's powder, morphine, or hyoscin hydrobromate may be recommended.

Further Report on Serum Therapy in Croupous Pneumonia.—J. C. WILSON and H. F. PAGE (*Therap. Monthly*, July, 1901).—As a result of the cases upon which this report is based, the treatment of pneumonia by serum therapy has been discontinued in the wards of the German Hospital in Philadelphia, where the work was done. The serum treatment was added to the usual plan, which consisted in the systematic administration of Dover's powder, the application of ice-bags to the affected region of the chest early in the course of the disease, the use of calomel, strychnia, alcohol, inhalations of oxygen when necessary, and other symptomatic treatment. The injections of serum were given in most instances directly after the patient's admission to the ward. The serum was administered hypodermically in quantities varying from 20 c.c. to 1080 c.c., the individual doses being 20 c.c. every three or four hours. The effect of each dose varied greatly with the freshness of the serum. This effect consisted in slight lowering of the temperature and the pulse frequency, mitigation of the pain, and a tendency to drowsiness. It was more marked in the first eighteen cases than in the subsequent ones. The duration of the disease was usually from five to fourteen days, ending by crisis or rapid lysis, from which it appears that no effect was produced upon the length of the disease.

The total number of cases treated with serum was thirty-five; of these ten died, giving a mortality of twenty-eight and one-half per cent. The authors have also collected from the literature one hundred and sixty-two cases of pneumonia treated with serum, of which twenty-seven died, giving a mortality of sixteen and six-tenths per cent., which can scarcely be deemed an improvement.

The Treatment of Chronic Bronchitis in the Elderly and Aged.—HARRY CAMPBELL (*Brit. Med. Jour.*, October 12, 1901).—In the treatment of chronic bronchitis four etiological factors are to be considered. These are: (1) Its toxic character, which is evident from its frequent association with gout and Bright's disease. Other toxic agents are alcohol and impure air arising from poor ventilation. The indications to be drawn from these considerations are, therefore, restriction of the meat diet, attention to the efficient functional activity of the skin and kidneys, avoidance of alcohol and general hygienic conditions.

(2) Chronic bronchitis is frequently due to poor general condition of the patient, in which the normal resistance of the tissues is diminished. (3) The frequent association of obesity with chronic bronchitis forms a vicious circle, the obesity embarrassing the circulation and the sedentary life followed in the attempt to relieve the cardiac distress fostering the obesity. An attempt should be made in every case, whether the overweight be great or not, to reduce, by restricting the carbohydrates, the body weight to a figure approximately normal for the patient's age and height. This restriction, in addition to the restricted meat diet, will give the patient a reduced daily quantity of food, which should be insisted upon until the normal weight has been attained. (4) Finally, respiratory exercises should be practiced in order to preserve the mobility of the thorax.

PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

R. B. H. GRADWOHL, M. D.

A Bacteriologic Study of Acute Articular Rheumatism.—V. E. PREDTETCHENSKY (*Vratch.*, 1901, No. 24, p. 761; *La Presse Medicale*, November 16, 1901).—This author made a careful search for the bacillus of Achalme in five typical cases of acute articular rheumatism. The best conditions of growth for this micro-organism were obtained by him by means of the following procedure: 0.5 to 1 c.c. of blood obtained by pricking the end of a sterilized finger was mixed with a slightly acid bouillon containing 1½ per cent. lactose, to which was added (one-third by volume) sterilized milk, according to the method of Lavtchenko. The air was driven out of the tubes and hydrogen gas used as a replacement.

At the same time this worker looked for the coccus described by Wassermann as causative of acute articular rheumatism, employing for this purpose a strongly alkaline bouillon, which Wassermann claims is the best medium for growing this coccus.

The bacillus of Achalme was not observed in a single instance in these five cases. In three cases the cultures remained absolutely sterile (these cases being studied bacteriologically before the administration of sodium salicylate). In the two remaining cases the writer found a special micrococcus. At the end of twenty-four hours the milk in the tube prepared for study of the bacillus of Achalme coagulated, the clot being perfectly formed at the end of forty-eight hours. This showed a micrococcus in pure culture, disposed in elements of two, three and four organisms, facultative aerobic and anaerobic. On solid media these micrococci grew out in short chains; on liquid media, in elongated chains.

Subcutaneous inoculation of these organisms into guinea-pigs produced a condition closely akin to acute articular rheumatism in man; the animals showed signs of great discomfort, presented febrile symptoms and swelling of the large articulations, with death eventually. At autopsy there was found the changes of inflammatory periarticular trouble, with a serous condition in the joints. A localized endocarditis on the semi-lunar segments of the aortic valve was found in one guinea-pig. The organism was recovered in pure culture from the heart's blood and from the serous effusion in the joints.

The author contends that this micrococcus is the causal agent of acute articular rheumatism. He will not state that this is the same organism as that described by Wassermann, nor does he maintain that all cases of acute articular rheumatism are caused by the same organism.

[In this connection, it might be well to speak of the micrococcus described

by Meyer, of Leyden's Clinic. It was a micrococcus, and produced the same changes in guinea-pigs as this organism described by Predtetchensky. There is no reference to Meyer's work in the article before us. Perhaps it is the same micrococcus.—Ed.]

General Infection with the Enterococcus.—HULOT and ROSENTHAL (*La Presse Medicale*, November 6, 1901).—These authors report a very interesting case of general infection with the enterococcus described by Thiereclin and Rosenthal. They give clinical history, post-mortem findings and the bacteriologic report. Clinically, the patient, a woman of fifty-eight years, presented symptoms of general sepsis, with severe diarrhea. She went into semi-coma on entering the hospital, and died after some days in this state. Post-mortem, a greatly enlarged spleen was made-out, weighing eight hundred and thirty grammes; also a ptosis of the abdominal viscera. The intestines were congested. Histologically, the liver showed some parenchymatous changes, principally in the cells which contain many nuclei deeply staining with eosin. The spleen showed evidences of congestion and hemorrhagic extravasations into the parenchyma.

Cultures of the heart's blood showed a diplococcus staining by Gram's method, apparently like the pneumococcus of Talamon-Fraenkel. Bouillon tubes inoculated with the organism showed it in short chains of four to six elements. At the end of several days, longer chains were seen. At the same time polymorphism was observed; the same chain would show smaller and larger cocci. A delicate growth took place on agar of small confluent rose-colored colonies. The morphologic and biologic characteristics of the organism clinched the diagnosis of "enterococcus." A rabbit inoculated with the organism into the auricular vein showed a small abscess at the point of inoculation without erysipelas. Mice died in twenty-four hours after inoculation, showing changes of septicemia and yielding the diplococcus in a pure state. White rats died, after four days, with septicemia and giving up the lanceolated and aureolar-like diplococcus.

The infection resembles that sometimes produced by the pneumococcus, just as the organism itself resembles the pneumococcus. The enterococcus is an organism which has been described by Thiereclin and Rosenthal, and which is thought by them to be an intermediary organism between the pneumococcus and the streptococcus. It is saprophytic and pathogenic, has a polymorphism which is precocious and peculiar to this micro-organism, and has considerable vitality. The organism is an inhabitant of the intestinal tract, and produces general infection or "enterococcie," as it is termed by the French, when the vitality is lowered, when there is sluggish movements of the intestines, and when there is as a predisposing factor old age, as in the case in hand. It produces a terminal infection in this way.

Changes in the Lymphatic Vessels of the Lung in Chronic Bronchitis.—WATANABE (*Virchow's Archiv*, Bd. clxv., Hft. 1).—Although it has been frequently noted that in chronic bronchitis there is an accompanying swelling and proliferation of the lymphatic glands, the exact pathology of the lymphatic vessels in chronic bronchitis has not received very much attention. The writer studied thirty-two cases of chronic bronchitis of different degrees, and found that even microscopically a marked participation of the lymphatic vessels in the process could be made out. These microscopic changes were visible as fine gray strands, which stood out more prominently where two lymphatic vessels crossed each other. Microscopically, the lymphatic vessels show evidences of inflammation, principally in the finer lymphatic vessels in the walls of the bronchi. The process is more severe on the periphery of the lymphatic vessels and grows less in degree as we go inwards. The process is essentially an acute one. It is seldom chronic. In cases of pure chronic bronchitis this involvement of the

lymphatic vessels is not to be made out so markedly as in cases of chronic bronchitis mixed with some other process, such as broncho-pneumonia, etc.

Fibro-Cystic Tumor of the Breast in Which the Majority of the Cysts are Lined by Stratified Epithelium-Like Cells.—GRIFFITHS (*Journal of Pathology*, November, 1901).—The author states that his case is an example of a very rare condition. The history and clinical findings were given, with the remark that removal of the breast was necessitated by the growth of a tumor at that site. Description of the specimen removed: The mamma is occupied by a large, slightly lobulated firm swelling, not adherent to the skin nor to the subjacent pectoral fascia. The nipple is slightly retracted. On section it is seen that the mass is, with the exception of a small portion near the periphery at one place, composed of cystic spaces, varying in size up to one-half an inch in diameter, which freely communicate with each other, and which are filled with a whitish boiled sago-kind of material. When the cystic tumor was opened, this sago-like material fell out easily, showing that it was not adherent to the walls of the cystic spaces in which it was lying. This portion of the tumor presents the appearance of a cystic fibro-adenoma. A section through that part of the tumor which has the usual appearance of a cystic fibro-adenoma, shows gland tubules and small cysts of varying sizes, lined by a single layer of columnar cells, which are tall in the unaltered gland tubules and somewhat reduced in size in the cysts. A section through the part containing the sago-like substance shows that the cysts themselves are lined, not by a single layer of columnar cells, but by a layer of squamous epithelia like that of the epidermis, and that the sago-like substance consists of aggregated epithelial scales.

Three Fatal Cases of Pellagra, with Examination of the Spinal Cords.—SANDWITH (*Journal of Pathology*, November, 1901).—Bouchard in 1854 first drew attention to the changes that take place in the spinal cord in pellagra. Tucek in 1893 found in this disease sclerosis of the posterior columns and columns of Goll in eight fatal cases. In six cases there was also lateral sclerosis, and the lesions were found mostly in the dorsal region, but in one case there was also cervical anterior sclerosis. Marie in 1894 contrasted Tucek's pellagrous sclerosis with the posterior sclerosis of tabes dorsalis.

Sandwith had the opportunity of studying three cases of this disease, with histologic examination of the spinal cords. The cases occurred in persons living in Cairo, Egypt. The cords were hardened in Mueller's fluid and stained with Marchi's, Weigert-Pal, aniline blue-black and Van Gieson's methods. In the first case there was some degeneration in the posterior columns, as shown by Pal's method. The degenerated root entered at the third lumbar, and could be traced up to the dorsal region. The posterior median columns were unduly pale, and the small wedge-shaped tract seen in the upper cervical region, just outside the anterior horn, probably was a well-marked Helweg's triangular tract, and therefore a normal condition. In the second case, well-marked degeneration of the posterior columns was present, evidently of root origin, as shown by the escape of one pair of roots—the dorsal region. There was an increase in the connective tissue in the area of the affected roots and some thickening in the walls of the arteries. The posterior roots themselves also showed marked degeneration in their extramedullary course.

The third case showed practically no change except possibly some slight alteration in the medullated sheath of certain fibers, as shown by the blue-black method. It is believed that the sclerosis of the posterior columns in these cases was of root origin, and that the increase of connective tissue in the posterior columns is secondary to the degeneration of the roots.

The Value of Our Present Methods of Blood Examinations.—JANOWSKI (*Centralblatt fuer Allgemeine Pathologie und Path-Anatomie*, Bd. xii., No. 20).—This writer gives a dissertation on the present methods of blood examinations, and if we are to believe what he says, there is no practical value to be attached to our examinations, so far as positively aiding the clearing up of a diagnosis is concerned. From a careful perusal of his paper, we heartily agree with him in a measure, but must nevertheless contend that our clinical diagnoses are often cleared up by a blood examination. This author attempts to disparage the value of the Widal test. While it is true that with the ordinary methods at our command, viz., the use of the dried blood method, as advocated first by Wyatt Johnson, of Montreal, the results are not always satisfactory, we must firmly state that the performance of the Widal reaction with the fluid blood, where we can practice exact dilution, should be attended with an almost exact measure of success, and that in this way "pseudo-reactions" are not to be met with. The author speaks truly when he says that too much reliance cannot be placed on these tests. Yet does not the converse hold true? Should too much reliance be placed on the clinical signs? It is highly necessary to consider the clinical signs and the blood examination *tout ensemble*. In such considerations they will be found to be of some certain value.

Cancerous Lymphangitis of the Lung.—TROISIERS and LETULLE (*Archives de Medicine Experimentelle et d'Anatomie Pathologique*, Tome. xiii., No. 2, 1901).—These observations are made by Troisier and Letulle with the hope of clearing up the obscurity of these pathologic conditions in the lungs. They say that the "cancer nests" found in metastatic cancer of the lung stand in relationship to the lymphatic vessels of the lung. The cancer cells are scattered throughout the lung through the medium of the lymphatic vessels. The cancer cells, in their flow through the lymphatic vessels, are impeded by the lymphatic glands. In some instances the intima lining the lymphatic vessels becomes involved in the cancerous process. This is especially apt to occur in the finer lymphatics, when the cancer cells are brought to a halt and then pounce upon the lining membrane of the vessels containing them. It is a metastatic process and means lymphangitis. Any alteration in this endothelial lining of the lymphatics is liable to make that part become the seat of a cancerous process.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EHRENFEST, M. D.

On the Treatment of Pyosalpinx by Means of Vaginal Incision.—BUERGER (meeting of Gynecological Society of Vienna. *Ref. Centralbl. fuer Gynaek.*, October 26, 1901).—There is no analogy between this treatment and the operative treatment of abscesses located in any other region of the body. In a pyosalpinx we have to deal with a secreting *mucosa* which is a shelter for the bacteria. After the pus has been removed the bacteria may regain their activity, causing a recurrence of the abscess after some time. The perimetritis, usually accompanying the pyosalpinx, will not be healed definitely even when the sac has shrunk completely. Therefore, incision through the vaginal vault should be made only under certain conditions. Fever is the most frequent and important indication for this operation. In the majority of febrile cases there is a formation of virulent pus, rendering the removal of the pyosalpinx *per laparotomy* very dangerous. Continuous fever severely impairing the condition of the patient or probability of

perforation of the abscess into the abdominal cavity, may necessitate immediate interference. Vaginal pan-hysterectomy must be thought of first, if the condition permits so large an operation, and if the operation is possible from a technical standpoint. If not, vaginal incision is the only resort. A further indication for this operation is found in cases in which we meet with a large, unilocular pus-sac, immediately adjoining the vaginal vault. Out of twenty cases treated by vaginal incision, in five a recurrence of the abscess was observed, although great care had been taken to open and drain every pocket, and, in several instances, the wall of the abscess had been sewed to the opening in the *cul-de-sac*. In ten of these cases the other tube became infected after some time; in five a radical operation was ultimately necessary. The remote results were very unsatisfactory. In the majority of cases the old symptoms returned, even grew worse. Thus vaginal incision is an operation necessitated only by certain conditions, and performed with the idea of obtaining a cure by making a radical operation at a later date.

The Ultimate Results of Operation for Cancer of the Uterus.—CHARLES P. NOBLE (*Phila. Med. Journal*, November 9, 1901) reviews briefly the recent literature concerning the status of operation for cancer of the uterus, and reports his own experience in this connection. He draws from the views expressed by prominent gynecologists the following conclusions: The majority of cases of cancer of the uterus, when they consult the surgeon, are too far advanced for the hope of a radical cure. German statistics indicate that it is less true now than it was ten years ago. This is a hopeful indication, as showing that the teaching of surgeons concerning the necessity of early diagnosis and early operation for cancer is beginning to bear fruit. It may be claimed confidently that at least ten per cent. of the cases of cancer of the cervix operated upon remain free of the disease at the end of five years, and may be considered cured. For timely operations of carcinoma of the corpus a good prognosis can confidently be given. It is evident that seventy-five per cent. of these cases are permanently cured by hysterectomy, whether vaginal or abdominal. The abdominal radical hysterectomy for cancer of the uterus, involving the removal of the pelvic glands and the parametria along with the uterus, is still upon trial.

Of thirty-two patients operated upon by the author, six are living and free from recurrence at the end of five years, which is equal to eighteen per cent. There are nine patients living and free from recurrence at the end of three years. The best opportunity for improvement in these results is in the direction of early diagnosis. It is the duty of the profession to recognize that cancer is curable. The falsity of the common doctrine of climacteric hemorrhages should be appreciated and taught to women. The use of the curette and a microscopic study of the scrapings is almost invariably essential.

Total Hysterectomy in a Child Three Years of Age for an Uterine Sarcoma.—J. LORTHOIR (*Journal de Chirurgie*, September, 1901).—A small tumor, supposed to be a myoma, was removed through the vagina in a girl of three. Three months afterward a recurrence was observed. By partial vaginal hysterectomy, a sarcoma was extirpated. Two months later the tumor again returned and total abdominal hysterectomy was performed. The child recovered. Examination showed that the tumor was a small, round-cell sarcoma, originating from the posterior wall of the uterus.

On the Therapy of Extrauterine Pregnancy.—KROENIG, Leipzig (*Congress Deutscher Naturforsch. u. Aerzte. Ref. Muench. Med. Wochenschr.*, October 15, 1901).—The knowledge of the fact that in ectopic pregnancy the developing *ovum* grows into the tubal wall, has necessarily influenced the therapy of this condition. A sharp differentiation between tubal rupture and tubal abortion can no

longer be sustained. In every case of abortion there are certain lesions of the wall of the tube. The rupture develops gradually. Since chorion villi can be detected in the pregnant tube in every case of abortion, the differentiation between complete and incomplete abortion should be given up. Therefore, from a theoretical standpoint, every case of extrauterine pregnancy should be operated upon. Prochownik's conclusion, obtained from an extensive trial of both conservative and operative procedures, that operation is the only proper treatment of extrauterine pregnancy, must be accepted generally.

Hematocele Retrouterina Caused by Hemorrhage from an Ovary.—GABRIEL (*Archiv. fuer Gynaek*, vol. lxiv., 1901).—The author reviews the literature pertaining to this subject and reports one case of his own. Both tubes being involved, vaginal radical operation was performed. The right appendages presented the typical changes due to chronic gonorrhœa. The left tube was thickened, the left ovary of about the normal size. The latter showed a ruptured cavity of the size of a cherry, the walls of which were covered with a hemorrhagic crumbling mass. Microscopical examination reveals the cavity to be a ruptured Graafian follicle, in which no signs of tissue characteristic of pregnancy can be detected. Thus the possibility that it is a case of ovarian pregnancy is excluded.

The Indication for Artificial Abortion in the Treatment of Neuroses and Psychoses.—JOLLY (*Versamml. Deutscher Naturforscher*, Hamburg, 1901, *Ref. Cbl. fuer Gyn.*, 1901, No. 42).—Jolly believes that chorea gravidarum can be influenced favorably by an interruption of pregnancy. In all the cases in which this treatment was resorted to upon his advice, the outcome was satisfactory. The patients usually do not show marked improvement until one or two days after the fetus has been expelled. In cases of epilepsy artificial abortion is seldom indicated; more often in hystero-epilepsy and in melancholia; in the latter condition, however, a favorable outcome is very common without any interference with the pregnancy. Alteration in the circulation and metabolism during pregnancy play an important part in the pathogenesis of this condition. The continuous dread of the hardships of pregnancy and of the dangers of confinement has a detrimental effect. As a rule, we have to deal with neuropathic individuals, run down by continual fear and lack of sleep. Immediate interruption of pregnancy is indicated where transference of the patient to an insane asylum would seem to offer the only other security against suicide.

The Use of Sugar in Inertia of the Uterus During Labor.—M. LOP, Marseilles (*Gazette des Hopitaux*, October 17, 1901).—BOSSI, of Genoa, and PAYER, of Gratz, have lately reported the results of their researches on the efficacy of sugar in cases of inertia of the uterus. Lop, commenting upon these reports, calls attention to the fact that midwives in southern France since old times are in the habit of giving sugar to women in labor, if the expulsion of the child is delayed. The favorable effect of sugar upon the uterine contractions is so well known, that parturients in this part of the country will ask for "their sugar."

PEDIATRICS.

IN CHARGE OF

JOHN ZAHORSKY, M. D.

Infantile Scurvy and Marasmus.—HUBER (*Arch. Ped.*, November, 1901).—The patient was an infant thirteen months old. He was fed on the breast for a few months, and as he did not thrive the food was changed to condensed milk, and then to a mixture of cream and water. Gastro-enteritis developed.

On admission to the hospital the appearance was deplorable. Emaciation was extreme and prostration marked. Extensive black discoloration of the skin over the chest and abdomen was present. Smaller hemorrhagic spots were found scattered over the rest of the body. There were bed-sores over the sacrum and spinous processes. The right thigh and knee were swollen. Temperature, subnormal; weight, eight pounds, one ounce. Blood examination: Red cells, u, 740,000; white, 6,700; hemoglobin, 46 per cent. Treatment: Orange juice, whiskey, water, boiled milk and barley water. Raw milk was refused. The milk was given in hourly drachm doses at first. Later meat juice, broths and eggs were added. The infant rapidly recovered.

Vaccination as a Therapeutic Measure in Whooping-Cough.—LAFRUSCIO (*Ibid.*; *Temeria Medica*, April 4, 1901).—The author says that children were vaccinated for the first time in one hundred and twenty-one cases, and revaccinated in thirty-one out of the one hundred and fifty-two cases of whooping-cough, complicated with bronchitis or pneumonia in many instances, which he had occasion to treat last year. He is convinced that vaccination solves the therapeutic problem of whooping-cough. Five typical cases are described in detail; in most of them pneumonia and the convulsions ceased as if by magic after the vaccination, and although the cough persisted for a few weeks in some cases, it was merely as an ordinary catarrhal cough.

The Clinical Bacteriology of Diphtheria.—SCHABAD (*Jahrb. f. Kinderh.*, October 1, 1901).—This is an exhaustive study of the subject of the clinical varieties of diphtheria bacilli. He arrives at the following conclusions:

1. Diphtheria bacilli and pseudo-diphtheria bacilli are two distinct varieties.
2. The difference between them is characterized by a difference in growth on various culture media, in morphology, in reaction of a bouillon culture, in the staining according to Neisser, and the pathogenesis to animals.
3. The most striking differences are the reaction of bouillon culture and the Neisser's stain.
4. Pseudo-diphtheria bacilli must be distinguished from avirulent diphtheria bacilli; the latter, with the exception of their avirulence, agree in all points with the true diphtheria bacilli.
5. The difference in the results obtained through the Neisser stain by various observers may be explained by mistaking the pseudo-diphtheria for the avirulent diphtheria bacillus.
6. Avirulent diphtheria bacilli can be differentiated from virulent bacilli in all cases by special culture characteristics.

The Effect of Diluents on Milk.—FRANKLINE WHITE (*Jour. Bos. Soc. Med. Sci.*; *Merck's Arch.*, October, 1901).—After experimenting on the effects of different diluents on the coagulation and digestion of milk, he finds that dilution of milk with cereal decoctions renders the casein curd much more fine than simple dilution with water. This is mainly due to the starch in solution. For practical use a solution of three-fourths of one per cent. is best. Diastase, by converting the

starch to dextrin and maltase, promptly lessens and removes the action of cereal waters upon casein. Its addition is not a practical measure when the action upon the curd is desired. Lime water is no better than simple water. Albumin water has no practical value as a diluent.

Tetanus Complicating Diphtheria.—POWERS (*Amer. Med.*, November 2, 1901).—The patient was a boy aged eleven years. His temperature was 103 degrees. He had trismus and opisthotonos. He gave a history of having run a nail in his foot six days previous. The wound was inflamed. Prescribed pilocarpine, chloral, and bromides. Eight days later the mouth could be opened sufficiently to inspect fauces. A pseudo-membrane was found on the tonsil. Cultures revealed the Klebs-Loeffler bacillus. The patient was given antitoxin. The writer believes that the tetanus infection was banished by the diphtheria.

Intubation of an Infant Seven Days Old.—BAILEY (*Ibid*), lays claim of having intubated the youngest child on record. The infant suffered from a laryngitis due to German measles(?) Laryngeal stenosis became dangerous. Intubation was performed and the tube left in two days. The infant was unable to swallow for two weeks and had to be fed through a tube. For six weeks his cry was not heard, but a perfect recovery was made.

Adenoma of both Adrenals in the Newborn, Associated with Retrogressive Changes in the Adrenals of Marchand.—WARTHIN (*Arch. Ped.*, November, 1901).—A very interesting case of adenoma of both adrenals is reported by Warthin. A male infant died on the fourth day with suppression of the urine and convulsive seizures. At the autopsy the left adrenal was found to be replaced by a tumor about the size of a hen's egg. In the apex of the right adrenal was a firm yellowish mass about the size of a cherry. On the right spermatic vein, just above the right internal ring, there was a small body, size of a mustard seed. Another small body was attached lower down. (Adrenal of Marchand.)

Microscopical examination of both adrenal tumors show a hyperplasia of the fascicular zone followed by marked fatty changes and necrosis. Acute parenchymatous degenerative nephritis was found in the kidneys and liver. The small bodies found on the spermatic veins were found to consist of adrenal tissue. These he designated adrenals of Marchand. Extensive fatty change was present throughout these small organs. The etiology of this condition is obscure, but, most likely, has a toxic origin.

NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHWAB, M. D.

The Finer Pathological Changes in the Ammons Horn in Epileptics.—LUDWIG HAJAS (*Archiv für Psychiatrie und Nervenkrankheiten*, Vol. xxxiv., No. 2, p. 54.)—This study is based upon the careful microscopic study of the brains of four epileptics. The Nissl stain was used for the nerve-cells. In every case the rest of the central nervous system was carefully studied. As a result of this study the author notes the following: (1) One or both Ammons horn in every autopsy was smaller than normal and usually was found to be sclerotic. (2) Together with this change a rich new growth of blood vessels and a hypergliomatosis were found. (3) In several cell groups, especially in the pyramid cells, less often in the polygonal cells, complete disappearance of cells could be demonstrated. (4) In these

islands of cell disappearance, Glia cells are especially increased in number. (5) The hypergliomatosis was accompanied by a cell destruction. (6) Sclerosis of the cells. (7) Granular degeneration of the cells. (8) Serous condition of the cells.

The softening sometimes found in the Ammons horn in epilepsy the author holds to be less typical. The typical change in the Ammons horn in epilepsy is an inflammatory sclerosis which is shown by the condition of the blood vessels, by the neuoglia, and by the ependymitis and hydrocephalus internus which are found in most cases. This inflammatory encephalitic process is very gradual. Its result is the sclerotic atrophy to be seen both macro- and microscopically, which is comparable to the connective tissue atrophy found in other inflamed organs.

Reflex Epilepsy in a Case of Spastic Œsophageal Stenosis.—L. E. BREGMAN (*Neurologisches Centralblatt*, November 1, 1901).—Spastic Œsophageal stenosis is a rare condition. A. Schmidt could collect only twenty-four cases up to 1898. Reflex epilepsy as a complication has never been recorded before. This case is briefly as follows: Man, aged twenty-five years, no nervous heredity. The present condition has lasted ten years and consists in an inability to pass either liquid or solid food into the stomach. The food remains in the Œsophagus and can easily be removed from it by the patient. As a rule, he can force the food swallowed into his stomach by forced expiration or inspiration, together with efforts at swallowing. At times even this means fail, and for eight days at a time he has been unable to pass any food at all into his stomach. The Œsophageal stenosis shows great variation in this respect. During the last six or seven years attacks of unconsciousness have taken place during eating, which showed the following symptoms: tremor, restlessness, anxiety, paresthesia, darkness before the eyes, unconsciousness. There are no convulsive movements. The attacks last only a few seconds and are followed by headaches. The patient has injured himself frequently by falling. These attacks come on only when the patient attempts to press the food swallowed through the stenosis by the means above described. The passage of a bougie does not result in these symptoms. The author believes that the stenosis is functional and not organic, for these reasons: 1. Long duration of the disease, with preservation of a good state of nutrition. 2. The stenosis can be passed with even very thick bougies. 3. No history of any cause for an organic stenosis. The attacks are regarded as reflex epilepsy caused by the chronic irritation produced by the narrowed Œsophagus, for these reasons: 1. The seizures take place only during eating, when the patient is in the act of attempting to press the food through the narrowed Œsophageal tube. They are more severe in proportion as the obstruction becomes more difficult to overcome. 2. The attacks developed only after the local condition had existed for a long time. 3. There is no previous history or other etiological cause for epilepsy. The prognosis is not favorable. Treatment consists in the regular passage of bougies, lavage of the Œsophagus, tonics, etc. Rectal feeding continued for a long time, and an energetic course of bromides were tried.

Amebism of the Neurones.—BINET-SANGLE (*Le Progres Medical*, October 19, 1901).—This is a very interesting contribution to the theory of amœbic movements in the protoplasmic endings of the neurones. The author answers the objections which have been advanced by Lenhossek, Kolliker, Ramon Cajal, and Soury against it, and gives in addition the following reasons for the tenability of the theory: The retraction of the cellular bioproteon under the influence of various modes of motion has been observed in at least forty-three different species and in cells belonging to many and varied tissues. From this the author thinks he is justified in stating this law: The bioproteon of every living cell is susceptible of retraction under the influence of different modes of motion.

In answer to Jules Soury's chief objection, that it is essential to observe the movements of a neurone before believing that such movements exist, the author suggests that if this objection were allowed to have any influence, all methods of induction would have to be abandoned and psychology would be despaired of and it would be necessary to give up any hope of knowing anything about ourselves before death.

Acute Alcoholic Multiple Neuritis with Peculiar Changes in the Gasserian Ganglia.

—CHAS. W. BURR and D. J. MCCARTHY (*Phila. Med. Jour.*, November 2, 1901).—A case of acute alcoholic multiple neuritis in a woman thirty-seven years old, with involvement of the bladder and rectum and acute wide-spread degeneration of the central and peripheral nervous system, of the pelvic nerves and the vagus, with hemorrhagic extravasation within the sheath of the latter, degeneration of both fiber and cellular structures of the Gasserian ganglion and intra- and extracapsular round-cell infiltration and proliferation about the ganglion cells, which were in an advanced state of chromotolysis. The presence of bladder and rectal disturbances in a case of multiple neuritis is important, for it is commonly supposed that they do not occur, and that their existence is a differential diagnostic point against it.

Psychical Symptoms in Malaria.—CARDAMATIS (*Le Progres Medical*, September 28, 1901).—Among the psychical manifestations of malaria are, first, psychoneurotic symptoms during an attack of simple intermittent fever; second, the symptoms which are found in the chronic cases, both during the febrile attack and in the fever-free intervals; third, those found in the pernicious type of the disease; and fourth, the psychoses which occur in malarial cachexia. It is probable that the organism itself plays but a small part in the production of psychical symptoms, but the toxins originated by the organism are the active etiological factors. Although psychical symptoms may be found in any case of malaria, it is more apt to be present in those who are predisposed to neuropathic states. A morbid predisposition to neurasthenia, hysteria, and psychoses can be converted into an active condition by an attack of malaria. The malarial delirium differs in no way from the other toxic deliria. In the delirium of malaria, the patient, on account of the pathologic excitation of the centers of special sensation, develops a dreamy condition, and in that state delirium can be produced by hallucinations. There are four conditions of malarial intoxication: first, excitation; second, anesthesia; third, coma; fourth, paralysis. Attacks of acute mania are rare. In addition to the more common depressive and agitative forms of malarial psychoses, there is the same condition which is seen in other post-febrile mental conditions. The psychical symptoms produced in the course of a chronic malaria are not very frequent, while pathological mental states, which are said to follow an attack of malaria a long time after the malaria itself has been cured, are debatable, as far as their malarial origin is concerned.

GENITO-URINARY SURGERY.

IN CHARGE OF

H. McC. JOHNSON, M. D.

Case of Double Penis.—COLE (*American Medicine*, October 26, 1901) called attention to a case of double penis with imperforate anus previously reported by him. The anus was successfully operated upon. The boy was born with two penes and two urethrae. He passed urine through both organs at the same time. He is now in his eighth year, and still retains the two penes.

Some of the Conditions Following the Bottini Operation for Prostatic Obstruction.—BANGS (*N. Y. Med. Jour.*, July 27, 1901).—In some individuals, immediately after removing the Bottini incisor, it will be found impossible to introduce a soft rubber, gum or webbed catheter of any degree of stiffness. The deep muscles of the urethra contract down and prevent its passage even under an anæsthetic. To overcome this difficulty, the author has had made special steel catheters. This impediment usually subsides after three or four days. In one case, in which after the incision was made there was no bleeding, the cuts could be nicely seen with the cystoscope. The lateral lobes appeared to be divided in two and the cut seemed like a groove, the two halves falling away from each other, presenting the appearance of two separate smaller lobes. The inferior incision appeared as a dimple in a flat lobe. The patient had no discomfort after the operation; and while for some weeks there was a small amount of residual urine, after persistent treatment extending over a period of five months, it became infinitesimal and was of a sterile character. In another case in which the catheter at times caused so much irritation of the prostatic urethra that it was discarded at intervals and the condition allowed to shift for itself, the Bottini gave such relief that the catheter could be used without pain, and the patient could void entirely a measured quantity of fluid injected into the bladder and could urinate freely and easily even during an attack of pneumonia, of which he died two months later. At the autopsy the two lateral lobes were well widened out, and the inferior one was lowered. There was a little bridge of new tissue stretching across the inferior cut, which demonstrates the necessity of using the *catheter-a-demeure*, or passing the sound after the operation and making applications of silver solution.

The improvement in urination is not only due to the groove made by the incision, but also to the cicatricial constriction and atrophy of the gland following. By the emptying of the bladder and electrical treatment its tone is much improved.

The author reports forty-two operations. Sixty per cent. have thrown away the catheter, twenty per cent. have increased amount of spontaneous urination, and twenty per cent. showed little or no improvement. Three deaths were attributed to the operation: two from sepsis, and one from shock.

Prostatectomy the Method of Choice in the Management of Prostatic Obstruction.—FULLER (*Jour. Amer. Med. Asso.*, November 2, 1901) regards a man under sixty-five years of age as young in connection with prostatic surgery, and as middle-aged between sixty-five and seventy-two. He has operated successfully upon a man of seventy-eight. A surgeon should be influenced by the age of a patient, his physical and mental condition. An arterio-fibro-sclerosis is decidedly unfavorable. Putrid urine and ascending pyelitis, with some involvement of the kidney, should not stand in the way of an operation, but should strengthen the plea for speedy relief from the obstruction.

For radical relief in the majority of cases the question resolves itself into prostatectomy or nothing, unless suprapubic fistula. In the minority of cases it may be proper to consider, in connection with prostatectomy, castration and the Bottini operation.

Prostatectomy is demanded in the following groups: 1. Those not amenable to urethral instrumentation. 2. Those demanding vesical or perineal drainage as well as relief from prostatic obstruction. 3. Those in which renal infection exists as a complication. 4. All those complicated by phosphatic calculi in which litholapaxy is impracticable. 5. Those in which the prostatic mass causing obstruction is such as to require direct removal, not being amenable to less radical surgical treatment. He thinks it very likely that the criticism that castration is now out of date is justifiable, but has seen well-authenticated cases in which it gave some relief.

The Bottini operation has one great recommendation: It is easy of accomplishment. That is its chief advantage over prostatectomy. The avoidance of cutting and the use of electricity makes it popular with many. Some surgeons consider the operation of not very grave import, while others regard it as a procedure of considerable surgical magnitude. The mortality is around ten per cent. The operation cannot be considered radical, as in most of the best results some and often much residual urine remains. The statistics of a new procedure cannot be relied upon. Those of castration in the beginning were even better than those now reported from the Bottini operation, but have not been verified by further reports.

Prostatectomy Versus Prostatotomy.—GUITERAS (*J. A. Med. Asso.*, November 2, 1901).—From statistics given, Guiteras estimates that the mortality of prostatectomy is three times as great as in prostatotomy, and the failures about as frequent; but the recoveries from the former are better than those from the latter. If a patient can empty his bladder of all his urine except five-tenths of an ounce, and his symptoms are relieved, the author considers the result first-class. It may be said in a general way that middle-aged men with very large prostates as felt through the rectum, having good kidneys and bladder, are cases for enucleation, while very old men with slightly damaged kidneys and prostates that do not feel very large on rectal examination, yet causing considerable urethral impediment, are cases for prostatotomy.

Perineal Prostatectomy.—SYMS (*J. A. Med. Asso.*, November 2, 1901) has devoted a good deal of effort and thought to prostatectomy, and has devised a modification of one of the principal methods, whereby he believes the operation has been much simplified and the mortality considerably lessened. The Bottini operation, first introduced twenty-five years ago and found wanting, and recently by some strongly advocated, does not appeal to the author as a sound surgical procedure. In the first place, it does not remove the hypertrophied prostate, and only partially the obstruction. In the second place, it leaves a slough to separate and come away through the urethra. As there is no other means of drainage, and the wound is in the presence of infected urine, it seems to the author that the method is not as safe as some of its advocates think it. He reports having no death in nine cases operated upon by prostatectomy, and a complete cure in all except one. He has felt that the high mortality of prostatectomy was due to the too extensive operative procedures employed, and that suprapubic cystotomy was a dangerous undertaking, to be avoided. The author has invented a bladder retractor by means of which the bladder and prostate can be pulled down into the perineum, so that the lobes can be reached and enucleated with the index finger.

This operation is done in the following manner: Through a perineal cut a dissection is made to the prostate. The membranous urethra is opened, through which the retractor, collapsed, is introduced well into the bladder. After inflating the bulb of the retractor with a known quantity of water, by means of it the prostate is pulled within reach of the finger in the perineum. The lobes are now separately perforated and enucleated with the index finger. A large perineal drainage tube through the perineal cut into the bladder and some gauze packed into the wound complete the operation. The patient is allowed to sit up in from seven to ten days. A steel sound is introduced every few days until healing is complete. The operation is not difficult to perform, neither is it formidable.

Prostatectomy should not be left as a last resort, but should be done before the patient is in a dying condition or not at all.

A Probable Cause of Failure in Internal Urethrotomy.—LYDSTON (*J. Cut. and G.-U. Dis.*, November, 1901).—It is a common occurrence with surgeons to

have a limited number of urethrotomies recontract in spite of the energy expended in cutting and keeping open the strictures. The author has been unable to classify his cases with a view to prognosis, and with due allowance for such conditions as gout, rheumatism, and syphilis, he has been in a quandary to explain operative failure. Recently he has arrived at the conclusion that the personal equation, or idiosyncrasy, has more to do with the results than is ordinarily supposed. With keloid, or pseudo-keloid, which in a general way is not a rare condition, and given a tendency to fibro-hyperplastic tissue growth, there is no logical reason why the urethra should be immune.

This constitutional tendency is probably a powerful factor in determining the recontraction, as well as the occurrence, extent, consistency, rigidity and resistance to dilatation of strictures.

DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

MARTIN F. ENGMAN, M. D.

The Treatment of Cutaneous Epithelioma.—C. W. ALLEN, M. D., New York (*Med. Jour.*, November 9, 1901).—The author's plan of treatment comprises features of several methods. The border is to be curetted thoroughly with the smallest instrument which will do the work; this prepares the way for the quick action of the caustic. While the oozing of blood is being checked by pressure, the paste is prepared as follows: Equal parts by weight of arsenious acid and orthoform, or by bulk one part of white arsenic to two parts of orthoform; these are mixed with just enough water to form a paste the consistency of butter. The paste thus prepared is packed into the furrows made by the curette, seeing that it penetrates well beneath the skin at the periphery. The unless the lesion is much over an inch in diameter, the ulcer cavity is filled level with the skin; or, if there is no cavity, a thick layer of the paste is spread over the part to be destroyed; while in either case a thin layer is spread over lint or gauze, cutting a piece large enough to extend over the skin some distance beyond the sore; but before applying this outer layer of paste a ring half an inch wide should be painted with methylene blue solution to prevent irritation.

The reason for employing orthoform to replace the acacia of Marsden's paste is on account of its analgesic properties, relieving the pain to a large degree.

In deep-seated and penetrating cancers the author often uses the Czerny-Trunzeek method.

The reasons given for using the paste in preference to the knife are as follows: "No matter how much care is taken, lymph spaces or channels must be cut through, and there is always a chance that the incision may not be sufficiently wide of the growth to avoid outlying foci. It is, as is well known, in the lymph channels that the epithelial proliferation takes place to a great extent. Now if, as is supposed, the products of inflammation set up by the arsenic are carried by way of the lymphatics to outlying regions, it seems a fair presumption that the treatment may be further reaching than the knife.

"In many instances the anatomical situation is such that it is practically impossible to go wide of the mark with a cutting instrument, and I am forced to the conclusion that satellitic foci have a much better chance of escaping the knife than of escaping the effects of arsenic properly applied."

The Removal of Superfluous Hair by a Combination of X-ray Exposure and Electrolysis.—DAVID WALSH, Edin. (*Lancet*, November 2, 1901).—Some time since

it occurred to the writer that a combination of the two methods of focus-tube exposure and electrolysis might be of advantage. He found the following method useful where the growth is not too thick: The exposure to the focus-tube is made in the ordinary way, and a week or ten days later, when the hair becomes loose, each hair is extracted and the electrolysis needle is passed into the follicle. This method means that a large number of electrolytic punctures must be made in a small area. However, with a little management the removal may be made to extend over a couple of days, and in that way it is possible to remove, so to speak, alternate hairs. Sometimes a second exposure to the focus-tube is needed before the hairs become loosened.

He finds this combined method useful in some cases, as it increases the chances of effectual cauterization of the emptied hair follicle. At the same time it shortens the period of depilation, but, like pure electrolysis, it should not be undertaken unless the patient has enough resolution and patience to undergo the requisite treatment.

On the Curability of Syphilis.—TARNOVSKY (*Arch. Russes de Pathologie de Medicine de Chirurgie et de Bacteriologie*, 1900, vol. ix., No. 1, pp. 1-28; *La Presse Medicale*, September 7, 1901).—The author presents in this work fifty observations upon syphilitic patients, each of which he has observed from the beginning of the disease, afterwards observing them for twenty, thirty and forty years. In the majority of the cases the disease was contracted at the age of twenty-four, and twenty-eight and a half years have elapsed since the infection. The patients received during the first four years thorough treatment with mercury and iodide of potash. Most of these rested during twenty-four years under medical observation without presenting any manifestations of the disease. The majority enjoyed perfect health to the age of fifty-three years.

In only one were the symptoms limited to the initial lesion. In thirty-one cases the secondary accidents were traversed without ulterior symptoms. The remaining eighteen were cured after having suffered from gummata—that is the tertiary period.

Of the forty-eight men and two women forming the subject of these observations, twenty-seven married after contracting the syphilis. Of these twenty-nine six remained sterile, twenty-three of these had sixty-three infants, and of these sixty-three, fifty-six presented no trace of hereditary lues. All of these cases, with one exception, came from the upper classes and led the irregular life of a great city, some being military men, doctors, scientists, writers and functionaries, their work and manner of living being what is supposed to be opposed to the cure of syphilis. None of these cases were abusive in the use of alcohol. One had malaria. All enjoyed good health. Only three of the fifty would be supposed to have delicate health, yet two of these came from healthy and long-lived parentage.

After the disappearance of the secondary accidents the majority of the patients were submitted to treatment with iodide of potash following mercurial medication, and this was repeated intermittently for some years. In all of the cases the old methods of administering mercury were followed, but the author nevertheless thinks that even better results can be obtained by the newer modes of introducing the drug into the system.

The author states that syphilis is curable, but that the curability depends upon the treatment and the resistance of the patient to the morbid agent, good general health, and absence of morbid hereditary tendencies.

Infectious Erythema and Purpura Hemorrhagica Secondary to a Membranous Enteritis in the Decline of Typhoid Fever.—P. LOUDE (*Annales de Derm. et Syph.*, August-September, 1901) reported before the Medical Society of the Hospital of Paris a case of typhoid fever in a man of twenty-three years which very nearly

aborted during the eleventh or twelfth day and was accompanied by a trifling angina. The disease became complicated by a membranous enteritis, in the course of which, seven days after the defervescence of the fever, there appeared a general eruption of macules, papules and petechiæ, after which ecchymoses occurred upon the buccal mucous membranes and gums, with hematuria and epistaxis, while the purpuric condition upon the skin became accentuated. In spite of the gravity of the general phenomena which accompanied the purpura, cure was effected, but was preceded by a lumbar zona.

LARYNGOLOGY AND OTOTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

Incudefectomy in the Treatment of Progressive Hardness of Hearing, Tinnitus and Aural Vertigo.—BURNETT (*Pennsylvania Medical Journal*, October, 1901) states that chronic progressive hardness of hearing is the result of a trophoneurosis in the muscular structure of the naso-pharynx, eustachian tube and tympanic cavity, and not a purely catarrhal process. He considers the catarrhal symptoms accompanying progressive hardness of hearing as the result, and not the cause, of the trophoneurotic hardness of hearing, as is proven by the fact that, even when the catarrhal affections of the middle ear and naso-pharynx are cured, the deafness, tinnitus and ear vertigo continue to grow worse. The trophoneurosis, in the correlated muscular structure of the naso-pharynx and middle ear, induces sclerosis in the muco-periosteal lining of the tympanic cavity, contraction of the tensor tympani and ossicles, impaction of the stapes in the oval window, ankylosis of these bonelets, and stiffening of the membrane of the round window.

A well-known characteristic of this aural trophoneurosis is that it appears in one ear first and then, sooner or later, manifests itself in the other.

Ear vertigo occurs most often in cases of chronic sclerotic otitis media. Usually only in one ear. the more affected, is the cause of vertigo, though both ears may be affected with so-called chronic catarrhal otitis media. The more affected ear—the one causing the vertigo—is always profoundly deaf, and may be the seat of distressing tinnitus. The attack of vertigo comes on suddenly, but is usually slight, and occurs at long intervals, but finally the intervals become shorter and the symptoms more aggravated. Nausea and vomiting may be very intense and may be followed by collapse, but without loss of consciousness. The fact that the patient does not lose consciousness from ear vertigo, serves as the great differential guide in diagnosis between it and apoplexy, with both of which it is often confounded.

When conditions in both ears are the cause of the ear vertigo, the patient is entirely unable to walk, and sits down whenever he is attacked, even in the street. Such cases are often mistaken for alcoholic intoxication.

The first dominant physical change in the drum-cavity in progressive hardness of hearing is the contraction of the tensor tympani muscle.

This undue contraction in the tensor of one drum membrane, is followed by a similar one in the opposite tympanum, apparently by cross-influence.

The aim should be to overcome this retractive power of the tensor tympani, and thus relieve the symptoms and arrest the advance of this progressive neurosis of the muscular structures of the middle ear. This may be done in several ways, viz.: Tenotomy of the tensor tympani—a very uncertain method; excision of the membrane and malleus—a procedure followed by inflammatory reaction and simple incudectomy. The latter method, though difficult to apply, is entirely harm-

less and efficient in its results. The operation is performed under general anaesthesia.

The canal is sterilized by a solution of formalin 1:1000, and illuminated, best by a portable electric light held on the forehead. The initial incision is made with a delicate knife just behind the short process of the malleus and following closely the periphery downwards and backwards until a point below a line drawn horizontally through the umbo is reached. Little or no bleeding follows. The flap so made should be pushed inwards by means of a probe armed with a dossil of sterilized cotton. The incus-stapes joint is now seen, and the incus should be gently disarticulated from the stapes by drawing the former outwards and downwards by means of an incus hook knife passed behind its long limb.

When this is done, the long limb of the incus should be grasped by special forceps and drawn very cautiously downward and outward into the auditory canal, and then removed from the ear.

The slight bleeding which sometimes follows needs no attention. The meatus should be stopped with sterilized gauze, and the ear let alone for twenty-four to forty-eight hours, unless the gauze gets moist with blood. Then a dry dressing is inserted. There is no after-treatment, and, as a rule, there is no reaction following the operation.

Mastoid Operations—Disaster from Waiting for Group Symptoms.—C. B. STOCKWELL (*Detroit Medical Journal*, October, 1901).—Too little importance is attached to single symptoms, and, while waiting for a combination or sequence of signs, death often ensues. If proper significance could be attached to one or two important symptoms, doubt would be cleared up and life saved in many cases.

As an illustration in point the following is given, viz.: a case of acute suppurative inflammation of the middle ear, coming on as a concomitant to an attack of la grippe. After a few weeks the gradually diminishing discharge ceased, but some *malaise*, deafness, and a temperature slightly above the normal remained. Within a day or two the patient walked to the physician's office in the morning. In the evening a violent headache arose on the affected side, followed by meningeal symptoms and death in forty-eight hours. Previous to these symptoms none of the following group symptoms were in evidence: pain in mastoid region, tenderness on pressure, hyperæmia and oedema of the soft parts covering the mastoid, prolapse of the upper posterior wall of the auditory canal in the neighborhood of the drum, abundant discharge of creamy pus through the opening in the drum, facial paresis or paralysis, extension of the inflammation to the soft parts below the mastoid, phlebitis of the mastoid emissary vein, brain symptoms, and septicæmia phenomenæ—these latter, however, suggested by *malaise* and slight fever.

Some hours after the fulminating attack, slight tenderness was detected below the apex of the mastoid. An operation six hours before death revealed a suppurative inflammation in the mastoid, and a thrombosis in the adjacent sinus.

Another illustration the author gives is the case of a man, aged sixty-nine, who, five or six days before, had slight attack of the grippe, followed by marked deafness in the right ear. There was, perhaps, some slight middle-ear inflammation; but there was never any perforation followed by pus, nor even bulging or redness of any point of the drum membrane. The symptoms for three weeks were: a small inflamed and sensitive area in the posterior wall of the canal, near the outer part of the osseous portion, attended with a varying amount of pain, some pain over the parietal region of the corresponding side at night, marked deafness, no fever, no chills, no pain, no tenderness or swelling over the mastoid region, no bulging of the posterior upper wall of the external meatus near the drum, and no discharge from the ear. Treatment did not improve the deafness. Operation was advised, but consent was not given until ten days later, after a slight chill and slight rise in temperature. An abscess was found

in the mastoid, adjacent to the inflamed area in the external meatus. In two weeks hearing was restored and the wound virtually healed.

The author concludes that the authorities should encourage earlier operations, and justify them in the light of fewer symptoms, as many typical mastoid cases are listed under obscure brain lesions, and go on to a fatal issue unrecognized and neglected.

Advances in the Treatment of Diseases of the Nose.—LAMBERT LACK (*Lancet*, November 2, 1901) notes some of the great advances made within recent years—for example, the subject that more than any other occupies the modern rhinologist, that of the diseases of the accessory sinuses and air-cells, is not mentioned in Morrell Mackenzie's work on "Diseases of the Nose."

Suppuration of the antri with no external signs is extremely common, and was first discovered by Zien (himself the victim of a fetid discharge from the nose), who divined the cause, and had his antrum opened and was cured. Being then on the lookout, he soon discovered that the disease was not infrequent; and more recently it has been found that suppuration in the frontal and other sinuses is not at all uncommon.

While antral suppuration is at times due to the teeth, it is more commonly caused by nasal catarrhs, especially those associated with infectious fevers and influenza.

An acute catarrh of a sinus is commonly associated with a nasal catarrh, and then if the outlet of the sinus becomes blocked, acute suppuration will result.

The majority of these acute cases get well spontaneously, but sometimes chronic suppuration results.

This may be due to several causes. The intensity of the original inflammation may irretrievably damage the mucous membrane lining the sinus; there may be an obstruction to the outlet of the sinus from thickening of the mucous membrane or bone, or from polypi, preventing a free escape of discharge, and ultimately the persistence of the suppuration may induce changes in the lining membrane or bony walls of the sinus. It is important that these cases should be recognized and treated, because if suppuration persists, secondary changes will occur.

The chief object of treatment is to reduce the swelling around the opening of the cavity and to allow free escape into the nose. The nose should be washed out with some alkaline solution, around the openings of the cavities suprarenal extract and cocaine should be applied on pledget of cotton, and allowed to remain twenty to thirty minutes.

Subsequently use five per cent. to ten per cent. menthol in almond oil or alkaline, to keep the passage clear. It may be necessary to puncture the antrum through the inferior meatus, or open through the socket of a carious tooth. Irrigation should then be resorted to daily.

Chronic suppuration requires surgical procedure. The treatment of polypi, and the destruction of the underlying bone in cases due to diseased bone, although advocated years ago, is only now becoming universally appreciated.

Trigeminal neuralgia, hay-fever, paroxysmal rhinorrhea and asthma frequently depend upon diseases or abnormalities of the nasal cavities, and the more modern thorough treatment of these is followed by gratifying results; and lastly, adenoids in children are now more generally diagnosed and surgically removed.

Three Obstinate Cases of Empyema of the Maxillary Antrum Cured with Injections of Nargol.—A. G. WIPPERN (*Medical News*, November 9th) reports the results he has had in the treatment of three obstinate cases of empyema of the maxillary antrum with nargol.

CASE I.—Was of six years' standing. The antrum had been opened through the alveolar process, and after five years' treatment, during which the patient wore a canula, there was no improvement in the condition.

He complained of trifacial neuralgia and asthma, both of which distressed him to an extreme degree. Last June the antrum was opened by way of the canine fossa, and, after curetting the cavity, it was packed with gauze. For a month the cavity was irrigated with solutions of boric acid, hydrozone and permanganate of potassium, with little benefit. A 0.25 per cent. silver nitrate solution was then injected three times weekly for two weeks, with some improvement.

He then began to use a 0.25 per cent. solution of nargol, one quart of which was injected three times weekly. After three months' treatment the patient was discharged as cured.

CASE II.—Woman, aged forty-three years; had influenza three years ago, since when she has had neuralgia. There was a muco-purulent secretion from naso-pharynx, which was in all probability carried into the stomach during sleep, and to which the patient's impaired health was due. At times she was conscious of a faint odor in the nose, and also suffered with toothache. A number of teeth had been extracted without benefit.

The antrum was opened through the canine fossa, and with a curette a large amount of granulation tissue was removed. The antrum was packed with gauze, and two days later the cavity washed out and repacked. This was done three times weekly for a month, when it was found that the mucous membrane was again thickened, that a second curettage was necessary.

The cavity was now flushed out three times weekly with a 0.25 per cent. solution of nargol, and after the lapse of four months there were no symptoms of the former condition, and the patient was considered cured.

CASE III.—Was of two years' standing, and had been irrigated three or four times weekly with a saturated solution of boric acid without much benefit. The patient was troubled with more or less muco-purulent discharge and neuralgia. The antrum was opened through the canine fossa, and the cavity packed with iodoform gauze. Three days later the daily injection of one pint of 0.25 per cent. nargol solution was begun, and continued for one week, when they were given three times weekly. After two months' treatment the patient was cured.

OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

Treatment of Hypopyon Ulcers of the Cornea.—R. J. HAMILTON (*Brit. Med. Jour.*, October 26, 1901).—To decrease hyperemia of the iris and ciliary congestion, Hamilton recommends early subconjunctival division (peritomy) of the episcleral branches of the anterior ciliary vessels. The actual cautery, repeated if necessary at the end of forty-eight hours, is of the greatest value in relieving pain and bringing the infective process to a stand-still. After cauterization, an ointment of iodoform, ten per cent., in castor oil and lanolin, is placed in the conjunctival sack, and the eye protected by a light bandage. In children, ulceration of the naso-pharynx, and in old people purulent dacryocystitis, are usually present, and should receive appropriate treatment.

Remarks on the Treatment of Ulcers of the Cornea with Hypopyon.—R. WILLIAMS (*Brit. Med. Jour.*, October 26, 1901).—Before the pus in the anterior chamber becomes fibrinous, a solution of quinine and atropia (four grains of quinine to one ounce of atropia sol.) is used every three hours, and a bandage

applied. Usually the hypopyon disappears in three or four days, and the ulcer goes on to healing. If, however, the hypopyon increases, the pus is evacuated in the following manner: "Taking a perpendicular line across the cornea through the center of the pupil, a Graefe-knife is inserted at its lower end, just behind the sclero-corneal margin, the edge of the knife looking forward and being at right angles to the corneal surface. It is then thrust into the anterior chamber *through* the hypopyon until the point is near the lower end of the pupil, and made to cut its way out rather rapidly through the cornea."

The aqueous escapes with a rush, carrying with it the contents of the anterior chamber. If the hypopyon mass sticks in the incision, it may be removed by forceps. In the majority of cases the incision heals by first intention, and there is no further accumulation of pus.

Advantages claimed are: (1) complete evacuation of the anterior chamber and union by first intention; (2) the impossibility of producing prolapse of the iris. After evacuation the edges of the incision come immediately to apposition, thus preventing incarceration of the iris.

The Use of Ethyl Chloride as a General Anesthetic in Ophthalmic Practice.—C. FROMAGET (*Ann. d'oculistique*, September, 1901).—In 1895 Carlson, a dentist, while spraying a gum with ethyl chloride, accidentally induced a general narcosis. Since then the drug has obtained wide acceptance as a general anesthetic in dentistry.

Fromaget has used ethyl chloride anesthesia in more than a hundred ophthalmic cases. His method is as follows: A handkerchief covered by a sheet of paper is shaped to a cone, in the bottom of which is placed a tampon of absorbent cotton; 2 c.c.-5 c.c. ethyl chloride is sprinkled on the cotton, and the cone held over the mouth and nose of the patient, the latter being incumbent, with clothing about the chest loosened.

Anesthesia ensues in from fifteen to forty-five seconds, and precedes muscular relaxation and abolition of the corneal reflex; it lasts from one to three minutes, but may be prolonged to fifteen minutes by renewals of the drug. Pulse regular, a little accelerated. No cyanosis. On withdrawal the patient recovers quickly, without depression or headache. Anesthesia may be induced on a full stomach without danger, as vomiting is rare and transient. A mild stage of excitement is sometimes observed in hysterical subjects. Dilation of the pupil indicates an overdose.

The writer insists that this method should not be regarded as a substitute for local anesthesia by cocain, which is pre-eminently indicated when the ocular tissues are not inflamed. Where cocain is ineffective, ethyl chloride is to be preferred to chloroform in operations of short duration.

This method is especially indicated in sclerotomy, iridectomy in acute glaucoma, paracentesis, and subconjunctival injections in suppurative keratitis. In tenotomies in children the patient may be allowed to recover, observation of the effect of the operation made, a fresh narcosis induced, and the operation completed.

On the Comparative Value of the Various Preparations of Silver in Ophthalmic Work.—HARTRIDGE (*Brit. Med. Jour.*, November 2, 1901).—The disadvantages and limitations of nitrate of silver are summed up by Hartridge as follows:

1. Great pain and irritation.
2. Strong caustic effect.
3. Long-continued use produces argyrosis.
4. The action of the drug is superficial, owing to the ready manner in which it is precipitated by albumen and chlorides. These drawbacks have induced the manufacturing chemist to endeavor to supply a silver compound which may be

as efficacious as the nitrate, while free from its disadvantages. The preparations alluded to are as follows:

ACTOL.—*Argentum lactas*, soluble in water 1:15. It is very irritating to the conjunctiva.

ITROL.—*Argentum citras*, soluble in water 1:4000. Non-irritating, penetrating, antiseptic. Applied also as a powder directly to the conjunctiva. Recommended in suppurative conditions of the conjunctiva, cornea and lachrymal apparatus.

ARGONINE.—*Argentum casein*, contains four per cent. silver. Soluble in warm water, forming an opalescent solution. Inferior to LARGIN and PROTARGOL.

ARGENTAMINE.—Contains only 2.6 per cent. of silver. In five per cent. solution it is non-irritating and penetrating.

NARGOL.—Compound of silver and nucleic acid, contains ten per cent. silver. Soluble in water and stable. Five per cent. and ten per cent. solutions cause no pain. Efficacious in acute contagious ophthalmia and suppurative dacryocystitis. It possesses most of the properties of PROTARGOL, and is less sticky.

LARGIN.—Compound of silver and protalbin, contains 11.8 per cent. silver. Soluble in water 1:10. Must be protected from light, and be freshly prepared. A saturated solution produces transient pain and irritation. It has been found of particular efficacy in acute contagious conjunctivitis due to the Weeks' bacillus, trachoma, and lachrymal cases.

PROTARGOL.—Is a molecular compound of silver with vegetable albumen. It contains 8.3 per cent. silver. Readily soluble in water; becomes dark-colored and sticky if not protected from the light. A ten per cent. solution is equivalent in germicidal power to a two per cent. silver nitrate solution, but it has much greater penetrating power. It has no caustic action, and causes no pain. Ten, twenty, thirty and even fifty per cent. solutions are recommended. Corneal involvement is no bar to its use. It has proved of great value to purulent conjunctivitis, acute contagious conjunctivitis, trachoma, and suppurative conditions of the lachrymal apparatus.

BOOK REVIEWS.

ATLAS AND EPITOME OF THE NERVOUS SYSTEM AND ITS DISEASES. By PROF. DR. CHR. JAKOB, of Erlangen. From the Second Revised German Edition. Edited by EDWARD D. FISHER, M. D., Professor of Diseases of the Nervous System, University and Bellevue Medical College, New York. With 83 plates and copious text. Philadelphia and London: W. B. Saunders & Co. 1901. Cloth, \$3.50, net.

This atlas from the second German edition of the well-known Lehman series is a model in every way. The plates are well selected, and some are extraordinarily realistic. Some of them are purely diagrammatic, and are valuable because they present in a simple way the subject-matter treated of in the text. The text itself is clear and precise and brings clearly out the points which the diagram or plate illustrates. No atlas on neurology can compare to this, and it is doubtful whether any other author could devise one which brings within such a brief compass so much that is important and necessary for the student to know. The importance given to the anatomy and pathology of the central nervous system in this atlas will be much appreciated by those who are treating this subject, and the student himself will find that his way to the understanding of neurology will be made easier and pleasanter by a study of this admirable little volume.

CHURCH AND PETERSON'S NERVOUS AND MENTAL DISEASES. Third Edition. 1901. By ARCHIBALD CHURCH, M. D., Professor of Nervous and Mental Diseases, and Head of the Neurological Department, Northwestern University Medical School, Chicago; and FREDERICK PETERSON, M. D., Chief of Clinic, Nervous Department, College of Physicians and Surgeons, New York. Handsome octavo volume of 843 pages, profusely illustrated. Philadelphia and London: W. B. Saunders & Co. 1901. Cloth, \$5.00, net; Sheep or Half Morocco, \$6.00, net.

That this treatise has gone through three editions is ample proof of its popularity and of its value to the general practitioner and student. The chief criticism which might be advanced is that too little attention has been paid to the anatomical and pathological side of the subjects treated. Nowhere else in medicine perhaps is there such a need for emphasis to be placed upon the anatomical and pathological data as in nervous diseases, and the evident lack of this is a serious failing of the book. The illustrations are in the main well selected, though rather too great emphasis is placed upon rare conditions, which will seldom be met with by the general practitioner and student, for whose use the book is primarily intended. The nervous section is better than the mental. The latter is much in the style of the usual English text-book on this subject, which attempts to simplify a complex division of medicine by descriptions of symptoms rather than by careful clinical histories of the cases. A long account of a paranoiac, together with his autobiography, is a questionable addition to the book, for the reason that the student will be led to believe from the great amount of space given to this subject that it is of greatest importance, whereas other topics, to which much less space is given, are by far more essential to the general practitioner. The book, on the whole, has considerable value, chiefly in the fact that in one volume the student can find a fair treatment of both neurology and psychiatry, and thus may be impressed with their close connection. The make-up of the book is good, the print and paper excellent, and the few illustrations well done.

HAND ATLAS OF HUMAN ANATOMY. By WERNER SPALTEHOLZ, Professor of Anatomy in the University of Leipsic. Translated from the third German Edition by LEWELLYS F. BARKER, Professor of Anatomy in the University of Chicago. With a preface by FRANKLIN P. MALL, Professor of Anatomy in the Johns Hopkins University at Baltimore. Publishers, S. Hirzel, Leipsic; G. E. Stechert, 9 E. 16th st., New York. Vol. I. and II. Price: Each volume in cloth, \$3.50.

The enthusiastic acknowledgment which the original German edition of this atlas was met with is best proven by the fact that at the time of publication of the second volume, the first had already appeared in its second edition. In this country the work was introduced and popularized by Franklin P. Mall, of Johns Hopkins. We feel obliged to Dr. L. F. Barker of the University of Chicago for preparing a translation of this excellent book, thus enabling students and physicians who do not read German to be benefited by its study. Two of the volumes have been published in the English language at the time of writing, and the third one is promised soon. The first part deals with bones, joints and ligaments; the second with regions, muscles, fasciæ, heart and blood vessels. These two volumes contain 511 drawings, which we cannot praise too highly for their beauty and exactness. A short text is furnished by a most clear description of the figures and an explanation of all the descriptive terms made use of in the figures. In the author's opinion the text should only be a guide to the student, and ought in no way to render the study of a text-book of anatomy unnecessary. There is no question that this work is the best atlas of anatomy which has ever been published. It will prove of value to all who are interested in anatomy, and of unusual pleasure to those who will limit themselves to a cursory survey of the excellent illustrations.

A TEXT-BOOK OF DISEASES OF WOMEN. By CHARLES B. PENROSE, M. D., Ph. D., formerly Professor of Gynecology in the University of Pennsylvania. Fourth edition; revised. Octavo volume of 539 pages, handsomely illustrated. Philadelphia and London: W. B. Saunders & Co. 1901. Cloth, \$3.75, net.

The author presents in this book the best teachings of modern gynecology. In the idea of writing a book for students he tries to avoid confusion by limiting himself to an exhibition of his personal views on several still undecided questions. He fulfills this aim with noteworthy modesty. He never endeavors to convince the reader that his views are the only legitimate ones. This circumstance renders the reading of this work more interesting to every one. It is a *resume* of the wide personal experience of the author in the field of gynecology, and, therefore, we may be allowed to express our regret in this place that he withholds his views on the prognosis of cancer. We believe that no other American text-book deals with the question of the rationale and use of pessaries in as clear and complete a way. Tuberculosis of the genital organs and drainage, questions to which but little attention is paid in many of the text-books, are given considerable space.

This new edition has been carefully revised, much new matter has been added, and a number of new illustrations have been introduced.

LIBERTINISM AND MARRIAGE. By DR. LOUIS JULLIEN (Paris), Surgeon of Saint-Lazare Prison; Laureate of the Institute, of the Academy of Medicine, and of the Faculty of Medicine of Paris. Translated by R. B. DOUGLAS. Size of page $5\frac{1}{2} \times 7\frac{1}{2}$ inches. Pages v-169. Extra cloth, \$1.00, net, delivered. Philadelphia: F. A. Davis Company, Publishers, 1914-16 Cherry street.

If we are not mistaken, the German translation of this book, the original of which is written in French, bears the more appropriate title, "Gonorrhea and

Marriage." This theme is dealt with in this work in a most elaborate way. In the author's opinion, in the majority of cases the woman is the victim, and he hopes that "his view will be favorably appreciated in the United States, where the respect shown to womankind is boundless, so to speak." Although a strictly scientific work, it is written in the characteristic light French style, here and there bringing as illustrations the short histories of remarkable and very interesting cases. We believe that this little book will make many friends among physicians, and we hope that it will considerably promote the right understanding of the importance and consequence of gonorrhœa to the marital state.

ESSENTIALS OF OBSTETRICS. By CHARLES JEWETT, A. M., M. D., Sc. D., Professor of Obstetrics and Gynecology in the Long Island College Hospital, and Obstetrician and Gynecologist to the Hospital, etc. New (second) edition, revised and enlarged. In one 12mo volume of 376 pages, with 80 engravings and 5 colored plates. Cloth, \$2.25, net. Lea Brothers & Co., Publishers, Philadelphia and New York.

The object of this work is to place essential facts and principles of obstetrics within easy grasp of the student. It is intended as an introduction to the more elaborate treatise, and as a guide in following the didactic and the practical teaching of the college course. The present edition represents a complete revision. The book deserves favorable comment and we heartily recommend it to the students.

A TEXT-BOOK OF OBSTETRICS. By BARTON COOKE HIRST, M. D., Professor of Obstetrics in the University of Pennsylvania. Third edition, thoroughly revised and enlarged. Royal octavo, 873 pages, with 704 illustrations, many of them in colors. Philadelphia and London: W. B. Saunders & Co. 1901. Cloth, \$5.00, net.

This well-known book has just appeared in its third thoroughly revised and enlarged edition. The reader is impressed in every chapter with the fact that it is written as the outcome of a large practical experience. The author's advice in regard to the care for the puerpera is deserving of special consideration. We cannot agree, however, that the administration of ergot is advisable in every case, as soon as the child is born. We limit its use to cases in which an indication is given, and that does not happen very often. Figure 433 ought to be replaced by a better one. Packing of the puerperal uterus cannot be done satisfactorily without introducing the hand into the vagina, and, if possible, partly into the uterus. And if during this procedure the fundus uteri is not pressed down by an assistant or with the other hand, the packing will be insufficient and the vagina in great danger of being torn apart. For students and physicians alike this will be found one of the most satisfactory books on the subject of obstetrics.

MODERN OBSTETRICS: GENERAL AND OPERATIVE. By W. A. NEWMAN DORLAND, A. M., M. D., Assistant Demonstrator of Obstetrics, University of Pennsylvania; Associate in Gynecology, Philadelphia Polyclinic. Second edition, rewritten and greatly enlarged. Handsome octavo, 797 pages, with 201 illustrations. Philadelphia and London: W. B. Saunders & Co. 1901. Cloth, \$4.00, net.

The only characteristic features of this book are numerous tables which contain the various symptoms of two or three different pathologic conditions, ar-

ranged so as to facilitate the differential diagnosis. In all other respects the book is worked up along the usual line of text-books of obstetrics. We cannot say that this book is in any respect more "modern" than the last editions of a great number of works on obstetrics. The text is elucidated by numerous illustrations, many of which are well-known, from Hirst's "Obstetrics."

OPERATIVE SURGERY. Vol. II. Illustrated. By JOSEPH D. BRYANT, Published by D. Appleton & Co., New York. Price, \$5.00.

This volume comprises chapters xiii to xviii, treating in chapter xiii of operations on the mouth, pharynx, nose and esophagus; in chapter xiv, of operations on viscera connected with the peritoneum; in chapter xv, of operations on the anus and rectum; in chapter xvi, of operations on the thorax and neck; in chapter xvii, of operations on the urinary bladder; in chapter xviii, of operations on the scrotum, penis, and miscellaneous operations.

Each chapter is concisely and pointedly written, the author wasting no words; at the same time the style is pleasing. The author takes up the various organs and parts severally, and, after calling attention to its anatomical points and peculiarities, describes completely every operation connected with it. At the end of each description he discusses fully the leading modifications and methods of different operations. There are 827 illustrations in the 724 pages of reading matter. They are exceptionally fine and should alone recommend the book, which is up-to-date and first-class in every way.

INFANT FEEDING IN ITS RELATION TO HEALTH AND DISEASE. By LOUIS FISCHER, M. D., Visiting Physician to the Willard Parker and Reception Hospitals of New York City, etc. Containing 52 illustrations, with 23 charts and tables, mostly original. Second edition. Philadelphia: F. A. Davis Company, Publishers. 1901.

The book has undergone a careful revision and has been somewhat enlarged. Improvements in some of the chapters are manifest. Many valuable tables and references are found in the book. The subject of breast-feeding is carefully considered. He does not regard laboratory milk as the best diet for children. He seems to make the mistake of others who regard this as a special milk. Laboratory milk depends entirely on the physician's prescription. The assertion that sugar is added to make cow's milk palatable is taking a superficial view of the matter. Sugar is added to supply the deficiency of carbohydrates. We do not agree that an excess of sugar is the usual source of colic and green stools. His advocacy of the Gaertner milk will not meet the views of the practical physician, as a similar and more accurate mixture can be supplied by simple home modification. We are glad to see a chapter on the feeding of infants suffering from summer complaint, but it is very incomplete.

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